ENGINEERING NEWS-RECORD

Now—asphalt gunite lines canals p. 35

ANN ARBOR MICH
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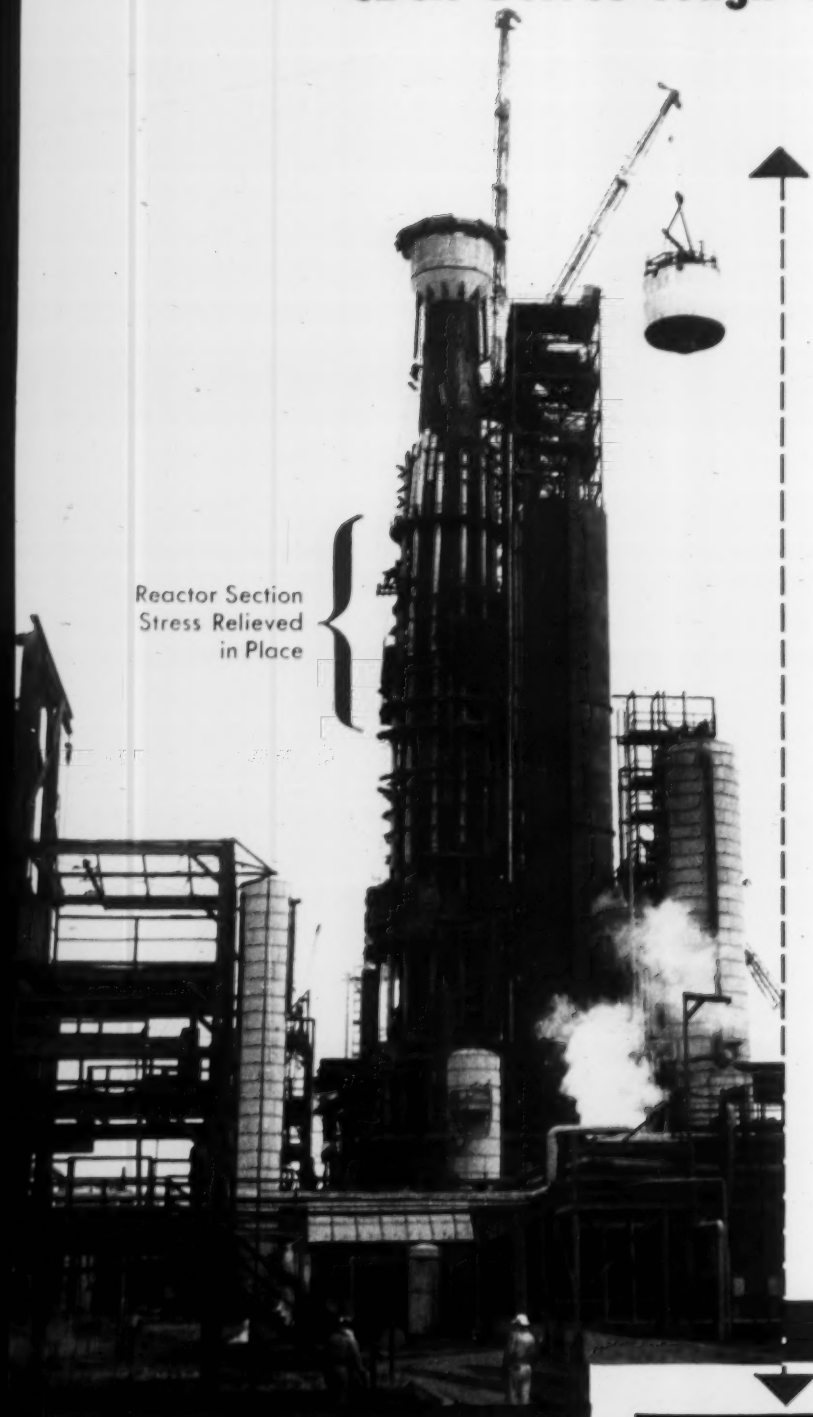
& POWER GS

A McGRAW-HILL PUBLICATION

CB&I Solves tough erection problems on 360 ft. high Houdriflow Units at Toledo and Marcus Hook



360-ft. high Houdriflow unit at Marcus Hook during erection. It is one of two Houdriflow units fabricated at our Greenville and Birmingham plants through the Catalytic Construction Company for Sun Oil Company's Marcus Hook and Toledo Refineries.

Many problems confronted Chicago Bridge & Iron Company during the erection of two Houdriflow units that they fabricated and erected for the Sun Oil Company Toledo and Marcus Hook refineries. One was the lifting of 94-ton cooling coil sections 300 feet in the air. This was handled by derricks mounted on top of 283-ft. towers designed and built by CB&I especially for these jobs.

FIELD STRESS RELIEVING

Field stress relieving was an important problem that was successfully solved. Furnaces were built at Marcus Hook and Toledo to stress relieve 13 sections with internal and external heads, for each Houdriflow unit. The 70-ft. long reactor sections were stress relieved *in place* with 20-ton hot air furnaces mounted on the stair towers . . . *approximately 160-ft. in the air.*

FIELD X-RAYING

All the main seams in the reactor and regenerator, some of which were $2\frac{3}{8}$-in. thick, were 100 per cent X-rayed in the field.

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Economical 5-arch stream crossing made from Beth-Cu-Loy pipe

Bridges are not always expensive, as this interesting example shows. Here we see five 60-in. galvanized Beth-Cu-Loy culverts laid side by side, with concrete retaining walls to hold back 3 ft of roadway fill. The result: an economical, easy-to-build stream crossing that will last for years.

In a wide variety of jobs the versatility of Beth-Cu-Loy corrugated galvanized steel in drainage structures is gaining rapid recognition. This stems from a number of reasons of which strength, of course, is one. Light weight makes handling, shipping and installing less costly. Flexibility permits the pipe to flex with the fill, conform to grade and alignment, absorb impact, vibration and the action of shifting and freezing soils.

Beth-Cu-Loy is open-hearth steel, with a small amount of copper added to provide resistance to corrosion. As an additional protection, the Beth-Cu-Loy corrugated sheets are given a tight 2-oz coating of Prime Western zinc. Some corrugated steel drainage structures have been in service fifty years and more, outliving the original project, and they haven't said "uncle" yet!

Beth-Cu-Loy galvanized sheets conform to the rigid specs of the American Association of State Highway Officials. For further ideas on how this durable material might serve you and your community, just get in touch with any Bethlehem district sales office, and they will direct you to one or more fabricators who use Beth-Cu-Loy Sheets.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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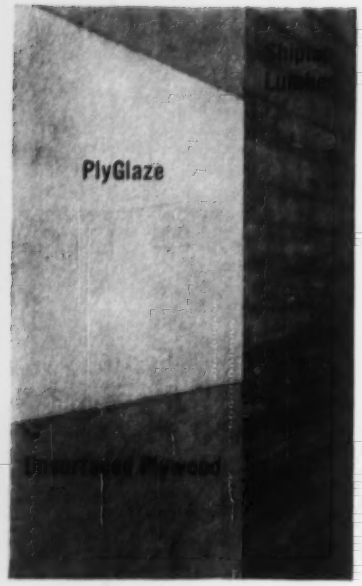

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NO PIPE LAYING DELAYS . . . NO JOINT FAILURES!

PROJECT: New sanitary system, Hickory Township Municipal authority, Mercer County, Pa.

ENGINEERS: Gannet, Fleming, Corddry & Carpenter, Consulting Engineers, Harrisburg, Pa., and R. B. McCurdy, Resident Engineer.

CONTRACTOR: Holloway Construction Co., Livonia, Michigan.

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EACH OF THE COMPACTING UNITS IN THE JACKSON MULTIPLE COMPACTOR DELIVERS UP TO 4200 TWO-TON BLOWS PER MINUTE. Hence, specified densities are quickly achieved in granular soil bases, sub-bases and all materials normally used in macadam bases and pavement widening projects, large fills and similar jobs.

The Jackson Multiple Compactor is by long odds the handiest, most convenient and efficient compacting machine on the market today. It will save you many, many times its cost in both time and money. See it at your nearby distributor. His name and literature on request.

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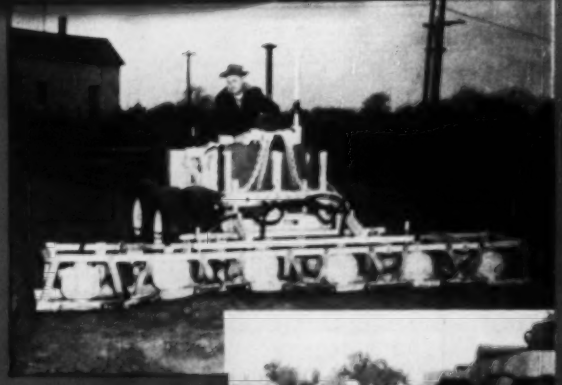
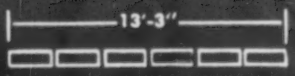
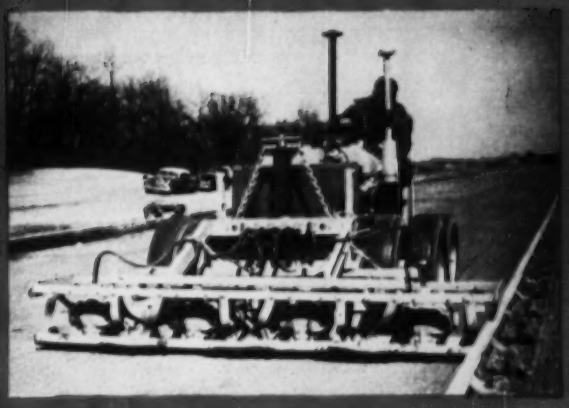
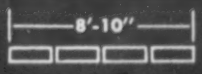


In the photo at right note how the end compactor unit automatically, without any adjustment, assumes the correct position to consolidate the shoulder of the base course to prevent raveling and erosion.

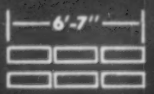


Utilizing the 6 Compacting units in line for maximum width (13'3") coverage. Working speeds: 0 to 60 ft. per min. Reverse: 8½ miles per hour.



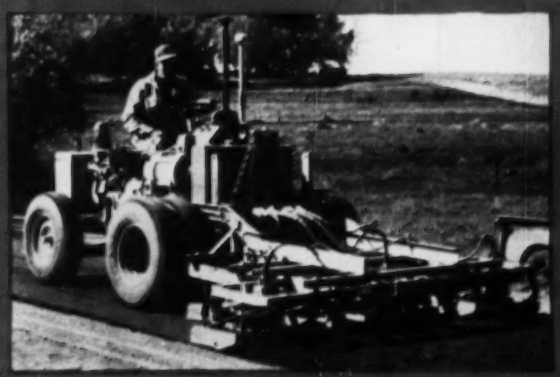


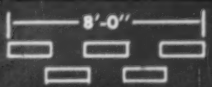
In this application the number of compactor units has been reduced to 4.



"Three following three" tandem arrangement of compactor units ahead of tractor, for maximum, one-pass consolidation of granular base course.

Furnished with operating handles, single compacting units may be used for jobs like these: Left: Consolidating gravel back-fill adjacent to parking lot retaining wall. Right: Consolidating bituminous concrete pavement up close against building wall — not accessible with other equipment. Unit compactor bases supplied from 12" to 26" in width.





AND VARIABLE

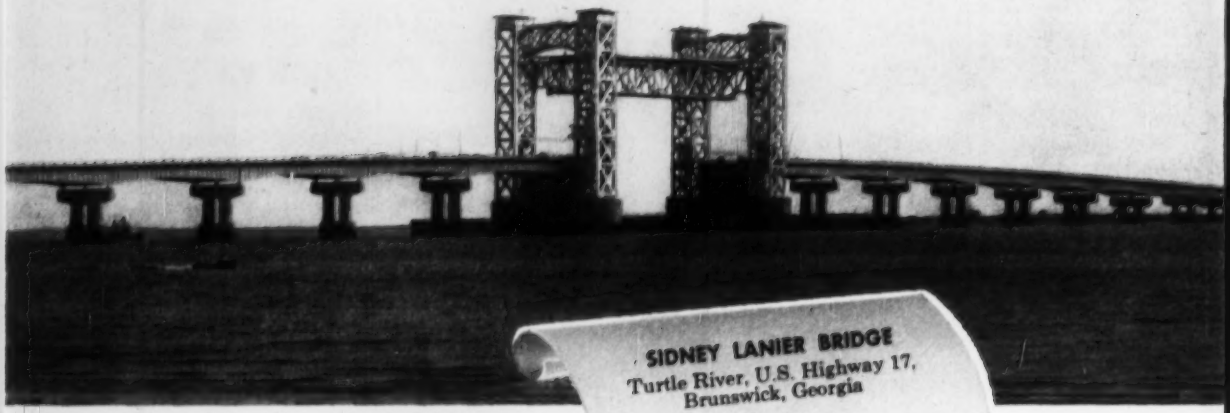
This arrangement was adopted for the 4" to 5" bottom course of a 24' soil-cement paving project. Variable in width within limits.

AND VARIABLE

Towed at the side, this arrangement of compactor units provides perfect, one-pass consolidation of widening course. Variable in width within limits.

On this 295′ vertical lift span

I-BEAM-LOK saves



SIDNEY LANIER BRIDGE
Turtle River, U.S. Highway 17,
Brunswick, Georgia

Owner:
State Toll Bridge Authority of Georgia

Supervising Engineers:
Georgia State Highway Department

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Sverdrup & Parcel, Inc.,
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Consulting Engineers to State Toll Bridge Authority for supervision of construction of lift span and design of toll plaza facilities:
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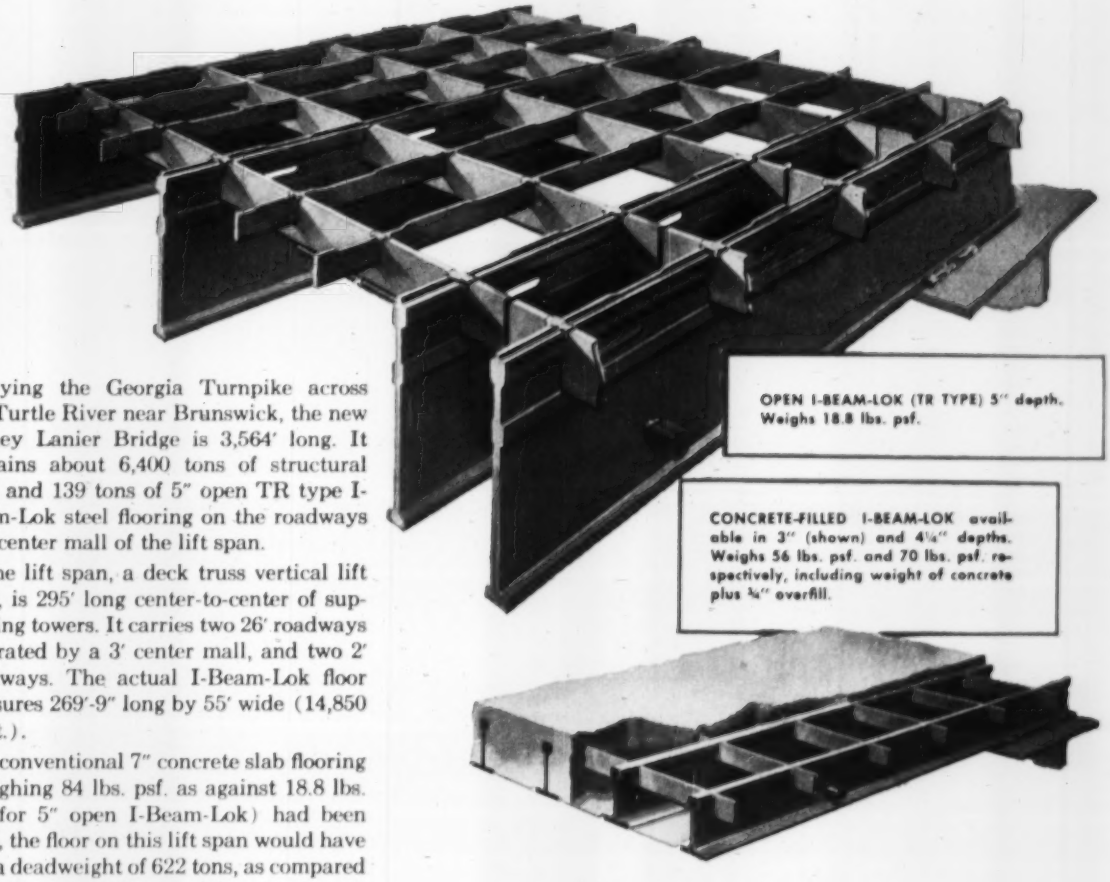

OPEN I-BEAM-LOK (TR TYPE) 5" depth. Weighs 18.8 lbs. psf.

CONCRETE-FILLED I-BEAM-LOK available in 3" (shown) and 4¼" depths. Weighs 56 lbs. psf. and 70 lbs. psf. respectively, including weight of concrete plus ¾" overfill.

Carrying the Georgia Turnpike across the Turtle River near Brunswick, the new Sidney Lanier Bridge is 3,564' long. It contains about 6,400 tons of structural steel and 139 tons of 5" open TR type I-Beam-Lok steel flooring on the roadways and center mall of the lift span.

The lift span, a deck truss vertical lift type, is 295' long center-to-center of supporting towers. It carries two 26' roadways separated by a 3' center mall, and two 2' walkways. The actual I-Beam-Lok floor measures 269'-9" long by 55' wide (14,850 sq. ft.).

If conventional 7" concrete slab flooring (weighing 84 lbs. psf. as against 18.8 lbs. psf. for 5" open I-Beam-Lok) had been used, the floor on this lift span would have had a deadweight of 622 tons, as compared with the actual floor weight of only 139 tons with open I-Beam-Lok . . . *a clear saving of 483 tons!*

Delivered in completely fabricated units ready for erection, USS AmBridge I-Beam-Lok is the modern bridge flooring for today's heavy traffic. It combines light weight and ensuing reduced costs of supporting members with roadway rigidity, ease of erection, a smooth, hard surface and low maintenance costs.

I-Beam-Lok bridge flooring is available in both open and concrete-filled types. Our new booklet gives complete information on both types of USS AmBridge I-BEAM-LOK. For your copy, write to American Bridge or contact the nearest sales office.

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Reader Comment

Housing Rehabilitation

SIR—In your Aug. 9 issue, your Washington Observer notes:

> "The housing slump is continuing—and government action may be coming to try to stop it. Government officials are not as worried as are private homebuilders, but they acknowledge there is little improvement in sight without new remedies being tried."

This is most interesting to us in the Los Angeles Department of Building and Safety because we are applying what could be termed a "new remedy."

This remedy is housing rehabilitation. It is not primarily aimed at taking up the slack in housing starts, but to rehabilitate and restore blighted neighborhoods—the same type of blighted neighborhoods that disgrace every city in the United States. However, as a byproduct, the program has stimulated housing reconstruction to the extent of an estimated $200 million a year in the City of Los Angeles. Only about half of this is reflected in permit valuation as much of the work is renovation and remodeling work requiring no permit.

Los Angeles building permits are running at the highest level in the city's history. Of course this cannot be entirely attributed to rehabilitation but much of it can. This should get the serious attention of the construction industry.

Here is a remedy for the slump in housing—a remedy that does not call for any new shot-in-the-arm stimulant by Washington. Everything needed is available, even the organized promotion of renewal and rehabilitation programs.

Financing is already available through Section 220 of the Federal Housing Act of 1954 and the recently liberalized Title I Home Improvement Loans. In addition, banks are arrang-

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

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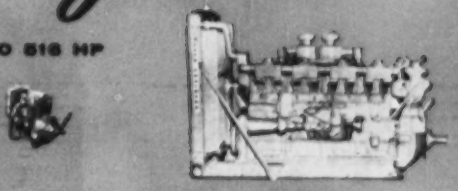

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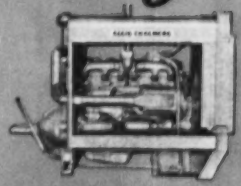

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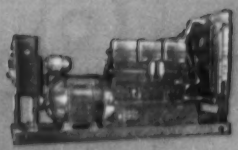

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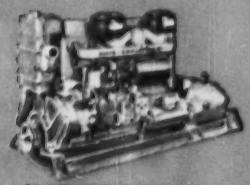
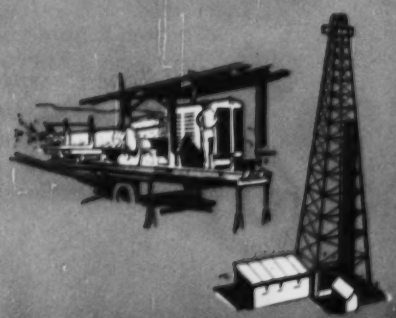


MARINE ENGINES

any USE



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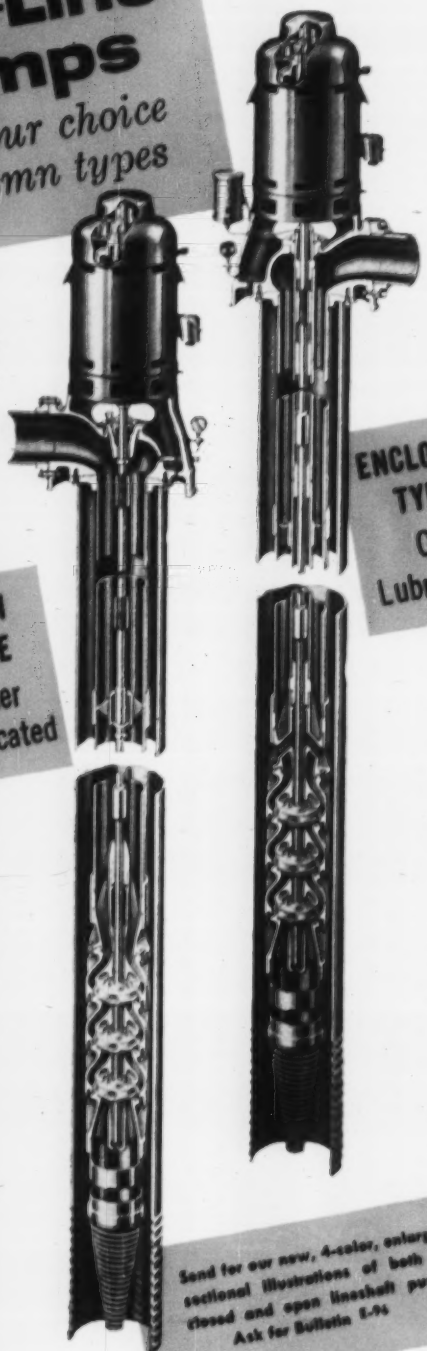

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ing financing without asking for the protection of FHA insurance.

All segments of the construction industry should push housing rehabilitation throughout the nation. Several organized promotions are under way to motivate the home-owner to renovate and to remodel. We refer to ACTION, the movement sponsored by American Council to Improve our Neighborhoods; the Build America Better Program, by the National Association of Real Estate Boards; and Operation Home Improvement, by industry and financial institutions.

The combined efforts of private industry promotion and the rehabilitation of substandard housing brought about by the enforcement of local housing laws are capable of generating a multibillion dollar construction activity. If American cities would enter this field on an adequate scale, the drop in housing starts would be more than offset.

G. E. Morris
Superintendent of Building
Dept. of Building and Safety
Los Angeles, Calif.

Shear Keys Still Necessary

Sir—In the article, "No Shear Keys Are Needed Here" (ENR, June 7, p. 61), W. E. Dean and A. M. Ozell report on a test of a prefabricated beam with a cast-in-place flange from which they conclude that shear keys between the two parts are unnecessary.

The test is not sufficiently conclusive to allow a generalization of the authors' findings. In order to learn how the bond between two concrete parts in contact but cast separately, compares with the bond in a continuous pour, tests should be extended to specimens of both types of beam with equal dimensions and equal loading arrangements and with at least some of the specimens having no steel connecting the two parts.

Such a series of tests might also throw light upon the physical behavior of a composite beam, the authors' concept of this behavior being open to considerable criticism. The statement that in the plane of contact between beam and flange—in a horizontal plane—the shearing force is always inclined, contradicts the very definition of a shearing force. In a horizontal plane of a beam nothing else occurs than a horizontal shearing stress (neglecting the insignificant compression due the load acting on top of the beam).

Notwithstanding the tensile stress in web reinforcement, there is no

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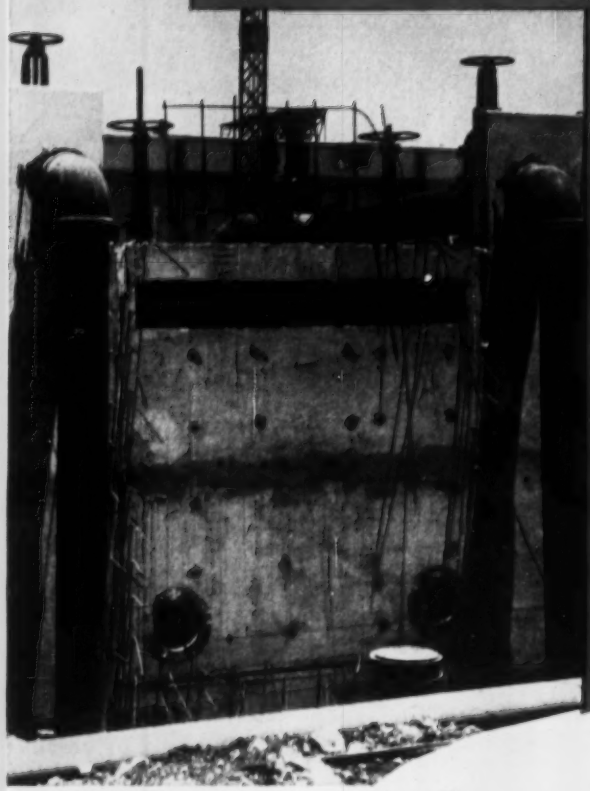

Never a doubt about cast iron pipe, no matter for what purpose you use it. And there are so many ways to put its rugged reliability to work for you. In *water* service, for fire protection and supply lines, feeder and distribution mains, purification plants. In *gas* service, mechanical joint cast iron pipe for distribution and feeder mains. In *sewerage* service, for force mains, outfalls and treatment plants. And in *industrial* service, uses too numerous to catalog. For information, write Cast Iron Pipe Research Association, Thomas F. Wolfe, Managing Director, 122 So. Michigan Avenue, Chicago 3, Illinois

CAST Q IRON

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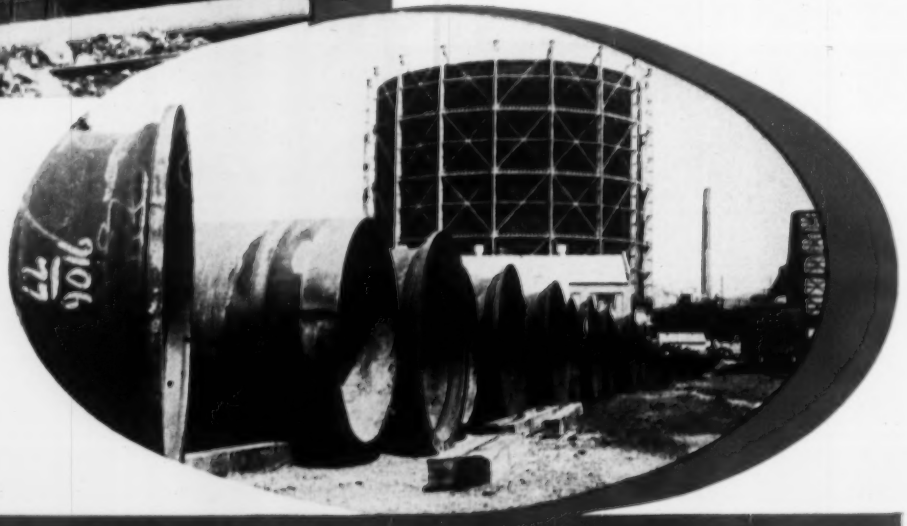
(above) Installation of mechanical joint and flanged cast iron pipe carrying salt water for Oceanarium, "Marineland of The Pacific" at Portuguese Bend, Calif.

(at right) 48" mechanical joint cast iron pipe for gas main at Indianapolis, Ind.



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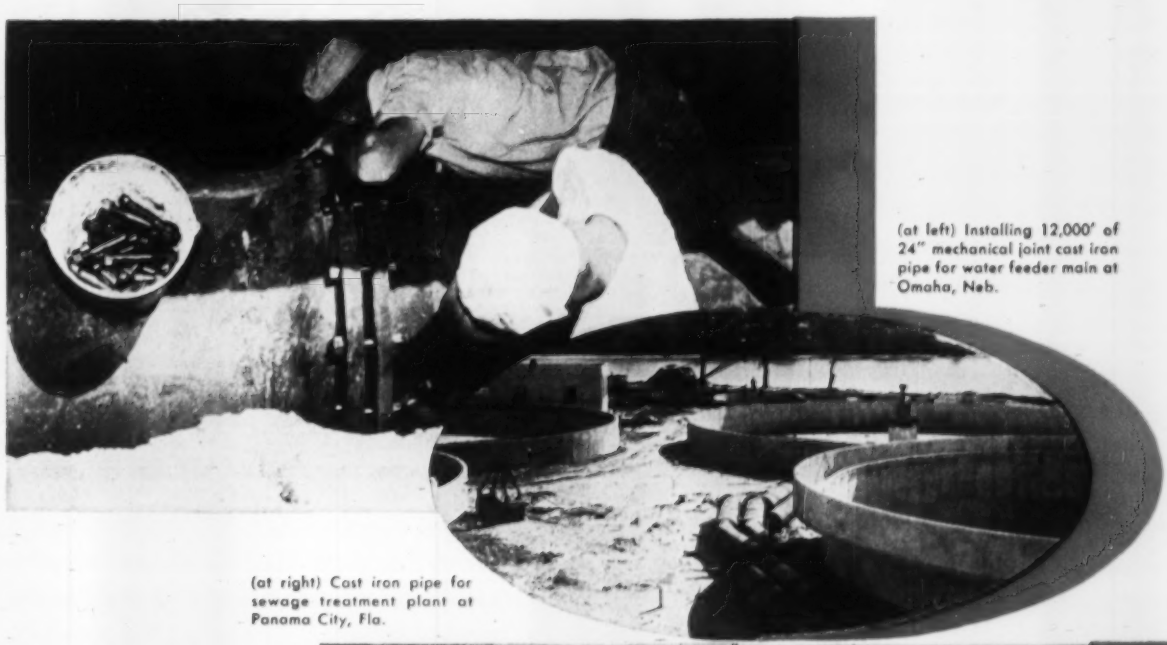

(at left) Installing 12,000' of 24" mechanical joint cast iron pipe for water feeder main at Omaha, Neb.

(at right) Cast iron pipe for sewage treatment plant at Panama City, Fla.

36" mechanical joint cast iron pipe for outfall sewer line at Los Angeles, Calif.

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. . . Reader Comment

uplift between flange and web of a T-beam, just as there is no uplift acting between the chords of a steel truss and its web members. The actual function of the loops between the two parts of the test beam is therefore not fully revealed. They may have acted partly as stirrups and partly as dowels.

I do not mean to imply that bond between separately cast web and flange may not actually be much stronger than generally assumed. But, as long as conclusive tests are lacking, safety considerations compel the designer to assume at least a plane of weakness between the two parts, which impairs the isotropy of the material and therefore requires special attention.

ROBERT V. HAUER
Structural Engineer
Albert Kahn, Inc.
Detroit, Mich.

CALENDAR

New England Water Works Association, annual convention, Mt. Washington Hotel, Bretton Woods, N. H., Sept. 16-19.

Illuminating Engineering Society, annual technical conference and fiftieth anniversary celebration, Statler Hotel, Boston, Mass., Sept. 17-21.

Building Research Institute, Modern Masonry Conference, Hall of Flags, U. S. Chamber of Commerce Bldg., 1615 H St. N.W., Washington, D. C., Sept. 19-20.

American Public Works Association, Public Works Congress, Texas Hotel, Fort Worth, Tex., Sept. 23-26.

The Producers' Council, Inc., annual fall meeting, Wade Park Manor Hotel, Cleveland, Ohio, Sept. 25-26.

Air Moving and Conditioning Association, Inc., annual meeting, The Greenbrier, White Sulphur Springs, W. Va., Oct. 2-4.

Federation of Sewage and Industrial Wastes Associations, annual convention, Hotel Statler, Los Angeles, Calif., Oct. 8-11.

Noise Abatement Symposium, seventh annual meeting, Hotel Sherman, Chicago, Ill., Oct. 11-12.

Sixth Annual Drilling Symposium, The University of Minnesota, Minn., October 11, 12, 13, 1956.

American Society of Civil Engineers, annual convention, Wm. Penn Hotel, Pittsburgh, Pa., Oct. 15-19.

American Concrete Institute, 9th annual regional meeting, Sheraton-Mount Royal Hotel, Montreal, Canada, Oct. 24-25.

Society for Experimental Stress Analysis, Desbler-Hilton Hotel, Columbus, Ohio, Oct. 31-Nov. 2.

West Coast Noise Symposium, third annual meeting, noise in buildings, Institute of Aeronautical Sciences Auditorium, Los Angeles, Calif., Nov. 12-13.

American Public Health Association, annual convention, Convention Hall, Atlantic City, N. J., Nov. 12-16.

Building Research Institute, conference on windows and glass in the exterior of buildings, United States Chamber of Commerce, Washington, D. C., Nov. 14-15.

Illinois Institute of Technology, Modern Builders Conference, Prudential Building, Chicago, Ill., Dec. 6-7.

American Society of Heating and Air-Conditioning Engineers, annual meeting and 13th International Heating and Air-Conditioning Exposition, The Conrad Hilton Hotel and International Amphitheater, Chicago, Ill., Feb. 25-Mar. 1, 1957.

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"First time I ever used Armco Piling ...but it drove fast and straight"

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All three bridges, totaling 1500 feet in length, utilize the same basic design —bents consisting of four Armco Pipe Piles capped by a concrete beam. The two outside piles were driven on a 1½ to 12 batter while the center two piles were vertical. All of the piles were driven with a drop hammer on fixed leads.

Armco Piles Have Many Applications

Armco Pipe Piles are economical and efficient for bridges on superhighways as well as county roads. They are also widely used for foundations of buildings and other structures. You will find the right wall thickness, diameter and length for every foundation job.

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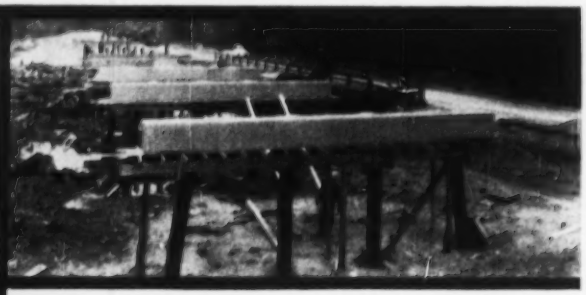
Bridge No. 1 Armco Pipe Pile bents are almost completed for this 389-foot bridge. Old bridge at right.



Bridge No. 2 Armco Pipe Piles are ready for next step in building this 683-foot-long bridge. Note old bridge.

Bridge No. 3 As with the other bridges, this 424-foot-long structure has outside piles driven on a batter.

Contractor: H. G. Smith, Fitzgerald, Georgia

Georgia State Highway Department:
Resident Engineer, L. B. Ackerman
Project Engineer, J. I. Moore

ARMCO
PIPE PILES

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

WHAT FORM OF PARTNERSHIP—In the last session of Congress a partnership bill for construction of John Day Dam on the Columbia River failed to get anywhere. The ill-fated bill called for unspecified "partners" to put up $273 million to cover power phase costs and the federal government to foot the rest of the $310 million bill. Now Klickitat County Public Utility District in Washington State has applied to the Federal Power Commission for a preliminary permit to investigate the project. There is no hint of financial arrangement. But partnership still looms strongly—the PUD reportedly has inquired into the possibility of utilizing the Corps of Engineers as its construction agent. At present the Corps is completing design under a $2 million appropriation. And until the situation is changed by partnership legislation, John Day remains a federal project.

LOCAL SHOPPING—With little action on the national scene, subcontractors continue to push their claims for independent bidding on local levels. Latest evidence comes from Cleveland City Councilman James J. Livingston, who announced he would introduce legislation to permit subs to submit bids directly to the city, by-passing the general contractors. Said Livingston, in a vein not unfamiliar to construction men: Prime contractors are shopping around and putting the squeeze on subs. Result is inferior work on city jobs.

PLAYING SAFE?—Niagara Mohawk Corp., spending $4 million to rebuild part of its demolished Schoellkopf Station below Niagara (see also p. 28), and not yet counted entirely out of the water-power picture at the Falls, said last week it will build a $75 million steam-power station in the area. The announced plant would bring the company's total capacity, hydro and steam, to 3,550,000 kw.

OUNCE OF PREVENTION—The snowballing trend for construction firms to set up separate engineering divisions has been dealt a blow in Kentucky. To prevent any firm from acting in the dual role of consultant and contractor, State Highway Commissioner Bert Kiser has stated that firms accepting commissions for surveys and planning of roads will not be accepted as bidders for their construction. Says Kiser: "We do not propose to commission consulting engineers to represent our interests in the planning of highways and at the same time—to represent their own interests as contractors."

SECOND BEST!

Only when the perfect pipe is invented.

The dream pipe for which all engineers pray would be light as a feather, indestructible, pliable enough to bend around obstructions, and would be installed by a magical machine that digs the trench and extrudes, lays and backfills the pipe.

Needless to say, this will be in the far distant future. Until such a dream pipe is invented, water works officials and engineers are specifying the next best pipe – LOCK JOINT CONCRETE PRESSURE PIPE. It comes the closest to realizing their ideal specifications: long life at top carrying capacity because it never corrodes nor tuberculates; great strength to withstand internal pressure and exterior loading; versatility to meet the most difficult laying conditions, and minimum maintenance requirements over the years.

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WASHINGTON OBSERVER

More lenders and builders are tapping FNMA as a source of credit. They are doing this by selling their FHA and VA mortgage paper which makes it possible for them to turn around and lend their money again.

Highest total of mortgages offered since the secondary market operation got underway 22 months ago was reached during the week of Aug. 27. More than 2,000 mortgages were offered worth $23 million.

Actual purchases lag behind offerings by 4 weeks or so. But purchases last week edged toward the $10-million mark. FNMA bought $9.25 million, and officials know the weekly rate will keep climbing.

Sellers have a new incentive in that, for the past month, they have had to put only 2% of the proceeds into FNMA stock; heretofore they had to invest 3%. However, FNMA buys at a substantial discount; its price is attractive only when money is extremely tight.

All told, Fanny Mae has bought $330-million worth of mortgages since the program started. In addition, $56 million has been approved but not yet purchased.

•

Construction job opportunities are on the upswing. This fact stands out above all others in the Labor Dept. summary—for the first half of this year—of its new monthly reports on the characteristics of the unemployed.

Construction workers comprised only 7% of the unemployed as of June, down from 24% of all the nation's jobless as of January. Part of this rise in construction jobs is, of course, seasonal, but labor spokesmen say not all of it is. One interesting note: Nearly half of the 80,000 unemployed construction workers in June were unskilled—a trend which is rising in other industries, too. Among the skilled workers drawing unemployed pay, most were carpenters, followed by plumbers and painters.

•

Congressional Sub-Committee on Highway Safety is gathering information around the country. The House Interstate and Foreign Commerce group, headed by Rep. Kenneth Roberts (D., Ala.) is trying to complete an investigation of their own to determine what deficiencies in law, law enforcement, vehicles, and highway design are responsible for the high accident rate. Interstate Commerce Committee has the same interest and jurisdiction in highway matters of this kind as does the Public Works Committee which authorized the highway construction program.

The committee has to report by the year's end when its authority expires as the new Congress comes in.

Bureau of Public Roads hopes to use some of this material in its own study of the same subject (see page 26).

•

Engineer shortage in government agencies is getting top-level attention. The government as a whole is concerned that the shortage is hurting the defense effort. Chiefs of Civil Service Commission, Office of Defense Mobilization, Budget Bureau and high-ranking officials of Defense Department, Atomic Energy Commission, and National Advisory Committee for Aeronautics are getting together to see what can be done.

One idea is to give agency heads more leeway on salaries in filling engineering spots. For instance, they might give highest salary permitted for a given job right at the outset, rather than require a new man to move up to top salary over a period of years. It would have the effect of boosting engineer salaries across the board.

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The teamwork of All-Wheel Drive and All-Wheel Steer makes the grader as sure footed as a mule.

Working upgrade on hairpin switchbacks is easy for the A-W grader.

All-Wheel Drive, All-Wheel Steer work together . . . doing things impossible for ordinary graders

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All-Wheel Steer makes Austin-Western graders twice as maneuverable as those with front steer only; steering that lets you "swing that rear-end" for handling every job with maximum efficiency.

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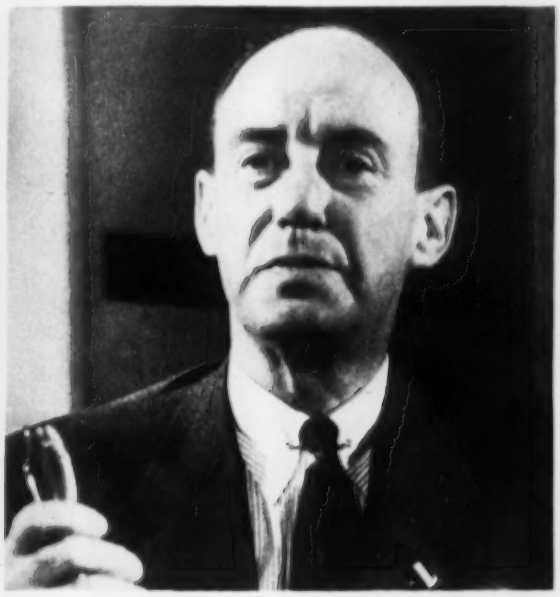
". . . Improvement of the economic strength and welfare of American workers has been one of the main objectives of the Administration."



"It is time to start thinking again . . . in terms of people . . . of a new America . . . where poverty is abolished."

For Them—Labor's Vote Is Quantity X

Charles J. Harding
Associate Editor

Ever since AFL-CIO President George Meany clashed over politics last December with Charles R. Sligh, Jr., then board chairman of the National Association of Manufacturers, the political power of labor under the new federation has been a $64 question.

At that time, Sligh expressed the fear that the AFL-CIO could "direct the destinies of the nation" by pulling strings behind the scenes and become a "ghost government."

So far, the answer looks like the same one which Meany gave when the AFL-CIO was formed: "We know that no one controls the votes of the American people, we don't pretend to control them and we don't care what party people come from. We want to educate our people to vote intelligently . . . for candidates with sympathy for the aims and aspirations of the great mass of workers."

Only an optimistic Republican or a pessimistic Democrat, however, would write off as ineffective the labor endorsements of Stevenson. Like any form of brain-washing, the endorsements are injecting the party label with all its emotional trappings into the otherwise non-partisan approach of the AFL-CIO and will undoubtedly make many politicians wish it weren't so difficult to split a ticket at the ballot box.

Myth though it is because of labor's composition, the "labor vote" has tossed both the Republicans and the Democrats into a tough campaign of psychological warfare, with particular emphasis on "human values," from which labor itself will be the biggest victor.

Whether "to the victor belongs the spoils" holds true will depend upon how many candidates friendly to labor are elected in November and how they cast their votes as councilmen, assemblymen, congressmen and senators on the various issues close to the heart of labor.

Within the last few weeks, Stevenson's dream of a "new America, where poverty is abolished and our abundance is used to enrich the lives of every family" has had a persuasive appeal to many in the AFL-CIO, particularly to those in the old CIO, to whom that language means more than "peace, prosperity and progress" to which President Eisenhower is dedicated.

But it's generally conceded that the Stevenson endorsements won't carry a heavy charge because the ultimate decisions in November rest with individuals whose interests and problems and political convictions, even within labor itself, defy a common mold.

• **AFL-CIO endorsement**—Perhaps the clearest demonstration of this in recent weeks has occurred within the AFL-CIO itself, and particularly within the building trades whose President, Richard Gray, publicly supported Eisenhower in 1952.

When the federation's Executive Council met on Aug. 27 in Forest Park, Pa., for example, the recommendation that the AFL-CIO endorse the Stevenson-Kefauver ticket was made without unanimity and only after hours of debate. Among the patent obstacles to the Walter Reuther drive for Stevenson were these: The non-partisan approach which Meany has consistently preached; the Gompers' philosophy of "rewarding friends and punishing enemies"; the personal convictions of council mem-

James P. Mitchell, Secretary of Labor

"The level of the economy was never higher in peace or war."

"More are gainfully employed than ever before."

"They are earning higher wages and they are able to buy more."

"Our responsibility: . . . to make the American dream a reality."

bers like Dave Beck (teamsters) and Maurice Hutcheson (carpenters) whose sympathies are known to be Republican, and the fact that the old AFL had come out for a presidential candidate only twice before in history—LaFollette in 1924 and Stevenson in 1952.

Out of the 22 members who voted, Beck, Hutcheson, Harry Bates (bricklayers) and Charles MacGowan (boilermakers) were among the eight who opposed endorsement of any kind. Beck, Hutcheson and Bates were among the five who opposed the endorsement of Stevenson. At the same time, Joseph Keenan (electrical workers) favored both the idea of endorsement and the selection of Stevenson.

This week the recommendation is before the AFL-CIO General Board. Its acceptance of the recommendation, according to Meany, is a foregone conclusion.

But Meany has been careful to point out that such an endorsement is an endorsement of the Democratic presidential and vice presidential candidates only, not of the Democratic party. Said Meany: "I don't consider this attaching ourselves to any party."

Even Reuther, whose political victory in the AFL-CIO may later plague the federation, has agreed that endorsements of local candidates are "local decisions" which the people make locally" on the basis of voting records and the positions of their parties on basic issues.

• **Reactions**—This feeling of autonomy and individual freedom is particularly evident in the building trades. Sal Maso, who is president of the New Jersey State Building and Construction Trades Council and who attended the Republican Convention, says that "the laboring man will accept advice and guidance, but he thinks and acts for himself."

Additional indications of current feelings are these:

• Dave Beck, president of the teamsters: "I am personally of the opinion that the AFL-CIO should not endorse. That question should be left to the individual international union . . . the Administration has done a splendid job."

• Charles Aquadro, president of the roofers: "Officially, the union does not endorse or support either Eisenhower or Stevenson and it has not expressed any preferences obviously, endorsement by the AFL-CIO will carry some weight in the election but just how much is the big question."

• Maurice Hutcheson, president of the carpenters: "We will not endorse either candidate. The members of this union have the right to vote as they please. They can vote their convictions, and, thank God, that's the way it is."

• William Calvin, president of the boilermakers: "This brotherhood will not become tail of any political party's kite. We will never tie ourselves to either party but will endorse individual candidates for Congress, depending on their record, not their party affiliation."

• **COPE**—Actually, Calvin's statement closely reflects the political approach of the AFL-CIO.

In commenting on the endorsement of Stevenson, for example, the AFL-CIO said "the Stevenson-Kefauver ticket was endorsed because the Executive Council considered that on the basis of the candidates, platforms and records, a victory for Stevenson and

Kefauver would be good for labor and good for the people of the whole nation."

According to Meany, "the challenge to labor is in the legislative halls. Our answer is political education and activity."

The AFL-CIO agency for conducting that activity is its Committee on Political Education, which is bound by the AFL-CIO Constitutional Convention mandate of "supporting worthy candidates regardless of party affiliation."

Through legislation, labor seeks to protect and improve the gains it has made and to secure greater economic prosperity, security and equality of opportunity for all workers. "We cannot hope for enactment of truly liberal and public-interest legislation," Meany has said, "until we elect a sufficient number of senators and congressmen not dominated by selfish pressure groups and dedicated to the public interest."

Supported by voluntary contributions from union members with a goal of $1 from at least 25% of the 15 million AFL-CIO membership, COPE vigorously encourages voter registration and reports "facts" about issues and candidates so that AFL-CIO members will "vote intelligently." It makes no endorsements itself, but its local agencies do.

It has already sent out for ultimate distribution by mail to every AFL-CIO member an analysis of the voting records of all candidates for office on the national level. Similar work is being done by local agencies on candidates for municipal and state posts.

The voting records cover most of the issues of interest to labor, ranging from minimum wages to foreign aid and covering such items as the Taft-Hartley Act, unemployment and workmen's compensation, housing, hospital and school construction and tax cuts. The candidates' votes are tabulated as "right" or "wrong," enabling the voter to determine whether the candidates are "friendly" to labor.

COPE co-director James McDevitt estimates that perhaps 25 Republican congressional candidates will win local COPE endorsements. All senatorial candidates are apt to be Democratic.

To supplement this work, COPE is taking off the press this week a "Speakers Handbook of Facts," which explains the issues and what position the AFL-CIO has taken. The booklet parallels the detailed statement which the AFL-CIO earlier submitted to the platform committees of the Republican and Democratic Conventions.

The United Mine Workers, of which the United Construction Workers is an integral part, is doing substantially the same thing. It has endorsed 45 candidates in 17 states all senatorial endorsements are on the Democratic ticket.

Seven congressional endorsements are on the Republican ticket. But even here the UMW and AFL-CIO don't agree—they've endorsed opposing candidates, for example, from Kansas' Third Congressional District.

The AFL-CIO is up against the same problem in its own ranks. The building trades are realists and have no direct interest in some of the fields in which the AFL-CIO takes an active interest, such as foreign affairs and farm price supports. Thus COPE may give the political ax to a "friend" of the building trades because of his record on things those unions aren't interested in. A case in point is Thomas Kuchel, Republican senator from California, who was largely responsible

Walter P. Reuther, President, Industrial Union Dept. AFL-CIO

". . . Economic gains can be lost by a failure to act politically."

". . . Statistical optimism doesn't take care of . . . unemployment."

"Slogans have taken the place of performance."

". . . The great crusade never left Madison Avenue."

for getting the prevailing wage provision in the highway bill and who is generally considered a "friend" by the building trades.

He was scored with a preponderance of wrongs and the local endorsement went to his opponent.

• **Issues**—Even on specific issues of mutual interest, the same situation occurs.

Of particular concern to the building trades are:

• Taft-Hartley amendments—legalization of pre-hire contracts; changes in the secondary boycott provisions; elimination of the mandatory injunction provision; and repeal of Sec. 14 (B) which supports right-to-work laws.

• Modernization of Davis-Bacon—extended coverage to include all federally-assisted construction; incorporation of fringe benefits in prevailing wages; centralization of enforcement.

• Housing—A public housing program embracing construction of two million housing units a year with realistic credit policies that allow VA and FHA mortgages to compete favorably in the money market.

Although the AFL-CIO goes along in substance with the building trades on Davis-Bacon and housing, it has failed to flag the critical credit issue, which is viewed with as much alarm by construction workers as it is by homebuilders. And on the Taft-Hartley issue, the AFL-CIO does not specifically support the building trades' requests. It merely asks for an "overhaul" of the law "on a fair and workable basis," with elimination of right-to-work laws which are considered a threat to union security. Thus its position becomes an unknown quantity. Some attribute the generality of the AFL-CIO approach to the still unsettled jurisdictional conflict between craft and industrial unions.

Except for the different approach to the Taft-Hartley Act, the political platforms offer labor little assistance in their ballot-box decisions. Most of the labor issues are covered in both platforms with glowing promises of marked similarity. But as to the Taft-Hartley Act, the Republicans would amend the law, giving the construction industry special consideration along the lines suggested by the building trades, except for repeal of right-to-work laws. The Democrats, perhaps because Vice President Thomas Kennedy of Lewis' UMW which wants repeal was on the platform committee, would repeal the law and start all over again. In doing so, they would eliminate right-to-work laws, which, ironically, are predominately Democratic states.

• **The decision**—Thus the voters are thrown back upon what they think the candidates have done and will do, and upon their personal feelings as to what the parties stand for.

On the presidential level, however, there is no uniform evaluation by labor of the record of the Eisenhower Administration. In the building trades, bulk of the criticism is Eisenhower's "failure to fulfill his pre-election promises to labor," with particular reference to housing, education, tax cuts and Taft-Hartley amendments.

The unparalleled prosperity of working people is generally conceded, but Meany, for example, claims we have this prosperity in spite of, not because of, the Republican party.

At the same time, some labor leaders subscribe to the prosperity views of Secretary of Labor James P. Mitchell, who said: "I don't think the AFL-CIO endorsement will have a great effect on the vote. I believe the workingmen of the nation are going to vote for the Eisenhower Administration, which has given them a high level of prosperity, real wages, jobs and other benefits."

Others are quick to point out that Democratic obstructionism in Congress has had a lot to do with the Eisenhower record. Loyd Mashburn, president of the lathers union, former undersecretary of labor and an Eisenhower supporter, shares Beck's views that the administration has done a decent job and has supported the AFL-CIO on principal labor issues. He has "more criticism" of southern Democrats than of Republicans. Incidentally, during the 84th Congress, whose record Meany describes as a mixture of good and bad, the strategic House and Senate labor committees (predominately Democratic in membership and where many bills labor wanted died) were headed up by southern Democrats: Barden of North Carolina and Hill of Alabama.

But when the voter moves away from the "record," he enters the quicksands of intangibles where Stevenson endorsements will doubtlessly be most effective. For specific actions and promises with respect to such things as unemployment and workmen's compensation, public housing and Davis-Bacon and Taft-Hartley amendments are apt to be less persuasive to many voters than the brainwashing of general concepts, slogans and party philosophy with emotional appeals.

Despite labor's avowed nonpartisan approach to politics, the Stevenson endorsement is bound to slant campaign talk in terms of the welfare of human beings and to affect to some degree ballot decisions all the way down the line.

Accuser . . .

Gov. George Leader claims to have evidence of multi-million fraud

Sparks Fly or

Gov. George M. Leader's long-standing guerilla action against the Pennsylvania Turnpike Commission erupted into open warfare this week. The governor flatly charged fraud amounting to more than $9 million, and state officials appeared in courts to ask for appointment of a special grand jury to investigate the charges. A grand jury proceeding was ordered by the court on Monday.

As presented to the Dauphin County (Harrisburg) court by Attorney General Henry P. Cohen, the state minutely documented its claims of fraud, it named an engineering-contracting firm, a former commission chairman, and various commission employees past and present—as having committed illegal activities. Final court action on calling a grand jury is expected this week.

But the final eruption of the charges brought to light two points of major interest to the construction industry:

• Basically, the fight is a political one.

• But it is also an all-out attack on the entire theory of commission or authority financing and operation of public works.

• **Political side**—The political angle in the fight is clear enough. Leader—

Defender . . .

Thomas J. Evans defends actions as legal, legitimate

Penn Pike

the state's first Democratic governor in many years–isn't up for election at the November voting. But his party is fighting hard to gain the U.S. Senate seat now held by Republican former Governor James H. Duff, and for many important state and city posts.

• Political Scandal

Thus any political scandal that can rebound to the discredit of former administrations–such as the present charges of long-standing malpractice on the part of the commission, its contractors and employees–can be turned into political capital. Additionally, the commission employs several hundred people–a nice addition to the state's patronage list.

There's another angle, too–and Governor Leader isn't alone. Officials of such a group as the Turnpike Commission are virtually untouchable by the elected officials of the state (in many cases they are appointed for definite terms, and not removable except on charges of misfeasance or malfeasance). Existence of such a powerful body, with power to employ and to spend huge sums, has been a thorn in the side of many a politician.

• **Finance side**–But the angles in the attack on the authority or commission method of financing public works aren't nearly as clear, though they add up pretty well out of what has transpired in Pennsylvania.

The governor has registered his opposition to this form of financing and operation several times–most recently when he announced that he hoped that the state could get federal credit (under the new highway bill) for the turnpike, use the money to pay off bondholders and free the road to become a part of the state's highway system.

He opened his campaign against the commission some months ago with an investigation into the affairs of the Delaware River Joint Commission, which (with part of its membership from New Jersey) operates several crossings between Pennsylvania and New Jersey.

• Charges by Governor

That investigation also began with charges by the governor of various forms of fraud, padded expense accounts and the like, resulting in dismissal or resignation of several commission members and employees, and some court action now pending.

The governor, and some economists, have contended that a straight financing by the state would have resulted in lower bond charges–hence lower tolls–and lower maintenance, engineering and other costs than have come out of the commission form of operation.

• **Complications**–A number of legal and other complications would seem to be roadblocks in the governor's intention to abolish the commission and others like it.

In the case of the Delaware River Joint Commission, this is a two-state (with New Jersey) compact, and could not be abolished unilaterally by either state.

Additionally, such compacts must be approved by Congress, and legal opinion is that Congressional approval would have to be obtained to dissolve them.

In the turnpike case, there is serious doubt that the new federal highway law will permit use of federal funds to pay off bondholders on what has been a private venture. In fact, the new law was purposely left vague on the matter of state credits for previously-built toll facilities, pending a three-year study and report by the Bureau of Public Roads. (In Illinois, Charles L. Dearing, executive director of the State Toll Highway Commission, in a special report to the commission, said:

"There is no feasible way of dissolving the covenant between the . . . commission and its bondholders, nor can federal money be used to 'buy up' the project . . .").

And there is considerable doubt that the money markets would accept direct state obligations as readily as they have those of the Turnpike Commission.

Also, there has been no court test of the state attorney general's opinion that the Turnpike Commission has no business but policing and collecting tolls on the 360-mile turnpike–an opinion under which the State Department of Highways has already started to take over planning, acquisition of right-of-way and maintenance, from the turnpike.

• **Specific charges**–Both in a prepared statement released to the press by the governor's office, and in the petition submitted to the court last week, the state administration singled out by name two principal targets–Thomas J. Evans, who resigned in July, 1955, as chairman of the Turnpike Commission, and the Mann-Mine Research & Development Co. of Reading.

In his petition to the court, the Attorney General specifically charged Mann-Mine with "intent to defraud the commonwealth of nearly $20 million, of which $9,064,241.42 already has been paid." Principal officers of Mann-Mine–some of whom are relatives (either directly or by marriage) of Evans–and a number of past and present commission employees are specifically named in the petition.

• Statements to Press

In statements to the press, both Evans and the Mann-Mine concern flatly denied the charges, Evans contending that every contract negotiated in his tenure as commission chairman was legitimate. The Mann-Mine concern, in a prepared statement issued in the name of Charles W. Stickler, Jr., president, denied the governor's charges as "ridiculous" and called them "a clear expression of the malicious and vindictive tactics" of the state administration.

Mann-Mine has lawsuits pending against the state for amounts of more than $1 million, as result of cancellation of contracts it held on work on the northeast extension of the Turnpike, which involved filling of old mine workings under the right-of-way, in an effort to prevent settlement.

Other commission employees were accused of accepting bribes, with participating in fantastic deals with auto dealers involving sale and repurchase of commission-owned cars, with doing work for private individuals at commission expense, and the like.

Five study groups set up, deadlines made as . . .

BPR Tackles Grand Plan Problems

Within the next 15 to 30 months, the Bureau of Public Roads is expected to come up with answers to highway problems that have plagued engineers and economists for years.

Congress ran headon into the perplexing problems while working out the accelerated construction program embodied in the Federal-aid Highway Act of 1956. Baffled by the lack of information on which to base final decisions, the legislators accepted compromise solutions and called on the bureau to fill rush orders for factual reports on five critical issues.

• Tough Assignments

All five studies are stiff assignments, as BPR Commissioner C. D. Curtiss made clear last week in a talk at Roanoke, Va., to the annual meeting of the Southeastern Association of State Highway Officials. The tasks range in difficulty from the immediately urgent job of making an accurate estimate of the cost of completing the interstate system, to a complex study that covers not only the cost of providing highways for different classes of vehicles but also the benefits derived from the same highways by both users and non-users.

The bureau's report on interstate construction cost is due in January 1958. Three states already are testing the method of making the cost estimates (ENR, Aug. 30, p. 19), and all state highway departments will be at work on their individual interstate estimates by November. Beginning in 1960, federal interstate funds will be distributed among the states on the basis of these cost estimates.

For the complicated analysis of broad-based highway benefits and costs—the incremental study, as it is popularly known—BPR has a scant 30 months to make a final report. The findings must be submitted to Congress by the Secretary of Commerce no later than March 1, 1958. Purpose, of course, as the law plainly states, is to help the legislators make "an equitable distribution of the tax burden among the various classes of persons using the federal-aid highways or otherwise deriving benefits from such highways." Two interim progress reports are called for, the first by next March and the second by March 1958.

Similar fast schedules are set by the legislation for three other studies requiring a vast amount of fact finding and evaluation. The earliest of these, due in January 1958, will assist Congress in determining "whether or not the federal government should equitably reimburse any state for a portion of highway which is on the interstate system, whether toll or free." To be considered, the roads must measure up to interstate standards and must be constructed between 1947 and 1957. The interstate system, including toll turnpikes that have been promoted for parts of reimbursement possibilities add up to several billion dollars.

• Up to Standards?

The bureau first has to determine which highways meet the interstate standards and then, in addition, give Congress the results of a complete study of all factors of "cost, depreciation, participation of federal funds, and any other items relevant thereto." Curtiss hopes that the states have their road life studies in good shape to ease the task. Even so, he says, figuring the depreciation of grading, surfacing and other items will be a big job.

Even more difficult will be the exhaustive study required to give Congress the recommendations it asks for on the maximum desirable weights and dimensions of vehicles. The language of the law might seem to imply, Curtiss noted, that the American Association of State Highway Officials road test project now under construction in Illinois would supply the answers—even as early as March 1, 1959, when Congress wants them.

But the Illinois test, he explained, has limitations. When completed, it will show "what pavement structure is required to support specific axle loads of known frequency." For the federal-aid systems, however, highway engineers will need much more information than they now have on the magnitudes and frequencies of axle loads to be expected. And, to determine desirable axle loads, Curtiss said, it is necessary to know not only the road cost but also the vehicle cost for vehicles of various weights and sizes, in order to arrive at the lowest total cost. Fortunately, a study of vehicle cost by the Highway Research Board's Committee on Economics of Vehicle Size and Weight is well along toward completion. It will contribute importantly to the bureau's analysis and recommendations.

A fifth important study, to determine what the federal government can do to increase highway safety, was added to the bill as Congress approached final agreement on the measure. This study, to be reported by March 1, 1959, calls for findings and recommendations on how safety can be promoted in the manufacture of vehicles, in the design of highways, and through educational programs or other means. It also asks for advice as to the possible benefits of uniform safety and speed laws and the need for federal assistance in enforcement.

BPR expects its study to complement a similar investigation already begun by a Special House Subcommittee on Highway Safety, headed by Rep. Kenneth A. Roberts (D., Ala.), Curtiss said. The bureau will make such use as it can of the committee's findings in planning its own study. Sure to be included, however, are a pilot study of the real causes of accidents and an investigation of the effect of speed and horsepower in producing accidents.

Deadlines for Completion of Studies

January 1958: A more accurate cost estimate of interstate system—present rough estimate is $27- to $28 billion.

January 1958: Re-imbursement to states for roads meeting 1975 standards—billions are sought by states with such highways.

March 1959: Cost of building roads to meet demands of types of users—additional costs to cope with heavy trucks, etc.

March 1959: Maximum sizes and weights of vehicles—recommendations to Congress fixing desirable axle loads, vehicle sizes.

March 1959: Design for traffic safety—findings on causes of accidents and their bearing on road construction.

The Race Is On

States are moving to get funds to start highways

Jockeying for position and applications for additional mileage under the Federal Highway Bill continue this week to hold the roadbuilding spotlight.

Announcement was made that the California Highway Commission has added $63,545,000 to the state's highway budget, thus marking the initial effect of the federal aid highway program in that state. Of the additional funds, $47,245,000 have been earmarked for right-of-way acquisition and $16.3 million for construction, some of which is slated for contract letting within a few months.

California's portion of the federal aid fund has been set at $142 million for the 1957-58 fiscal year and big emphasis has been put on right-of-way in the first allocation to clear the way for construction in succeeding years.

Largest project for which construction funds from the federal revenue source have been voted is the Los Angeles County Harbor Freeway, $6 million.

It will involve grading, paving and structures for 8-lanes of freeway 2.8 mi in length. Another $2.75 million was voted for the Long Beach Freeway in Los Angeles County. Right-of-way money includes about $7 million for Los Angeles County, $4.4 million for Contra Costa County and $4.5 million for Orange County.

In Kentucky, 24 civic, commercial and engineering groups have endorsed proposal of a $100-million bond issue that will go before taxpayers on November 6. The bond issue, which would make the funds available for matching federal road construction grants, has been promoted by the Kentucky Better Roads Council, a non-partisan organization of civil groups and leaders.

Availability of U. S. Funds Slows State's Bridge Plans

Availability of federal funds for highway purposes has slowed plans for four bridges near Hartford, Conn., while state officials debate whether the new money will make it cheaper for the state to build the structures.

The Hartford Bridge Authority—created a year ago, before passage of the new federal highway bill planned to build four bridges over the Connecticut River connecting Hartford and East Hartford. The new structures would be toll bridges. In addition, tolls were to be established on the century-old Bulkeley Bridge and the present one-cent commutation charge on the Charter Oak Bridge would go up to five cents.

But when the bridge authority went to Gov. Abraham Ribicoff last week with a request for $500,000 for purchase of steel piles for the first of the new structures, Highway Commissioner Newman E. Argraves objected. He said that with federal funds now available to the state, the new bridges could be built more cheaply—and as free structures.

Mindful of an estimated 20-year saving of more than $40 million to motorists if the bridges are free, the governor took the matter under advisement pending further study.

FPC Upheld Against State Effort to Stop Hells Canyon

An Oregon circuit court judge has ruled that "no state can exercise . . . a veto power against the action of the Federal Power Commission, acting under the Federal Power Act."

This opinion of Baker County Circuit Judge F. L. Hubbard dismissed an indictment against Idaho Power Co. charging the investor-owned utility and its officials with flouting the Oregon Hydro-Electric Commission, which required a state license for the company's Brownlee Dam on the Snake River (ENR Aug. 30, p. 27).

Judge Hubbard said "the (FPC) license granted is paramount over the laws of the state of Oregon for the construction and operation of the dam."

His ruling appears in consonance with interpretations over the past 15 years, which have extended federal jurisdiction to non-navigable tributaries of navigable streams.

Caisson Concreting Begins at Carquinez

Some 690 cu yd of concrete have been placed in the initial big pour for the first of three caissons slated for the substructure of the second Carquinez Bridge.

The 53 x 103-ft caisson has 18 cells separated by thick concrete walls. Concrete is barged to the caisson in bucket and hoisted to a special distributing machine by pile-supported derricks.

The bridge, which will cross an arm of San Francisco Bay, is a bond-financed toll structure of the California Division of Highways (ENR Dec. 15, 1955, p. 45). Contractor on the $5.5-million substructure is Mason & Hanger—Silas Mason Co., Inc., and F. S. Rolandi, Jr., Inc.

ARBA Sets up Information Group on Photogrammetry

In a move to provide widespread information quickly on latest developments in photogrammetry—seen as a manpower saver in the nation's highway construction program—the American Road Builders' Association last week announced formation of a new technical committee.

Heading up the new committee will be William C. Cude, chief of the Army Topographic Engineering Department at Fort Belvoir, and president of the American Society of Photogrammetry.

Among the duties of the new group will be preparation of reports on accomplishments of the method and on the latest developments by manufacturers of equipment utilized in the work.

Road Funds Needed

Governor seeks gas tax increase in New Jersey

Gov. Robert B. Meyner will ask the New Jersey legislature next week to raise the state gasoline tax from four cents to five cents to help finance the state's share of a $2.5-billion, 13-year highway program.

Leaders of the Republican-controlled legislature have said they will investigate other methods of financing the road plan. But privately they concede they probably will approve the gasoline tax increase.

The additional road funds are needed, according to state Highway Commissioner Dwight R. G. Palmer, to prevent the state from accumulating a $500 million deficiency in its highway system during the next 13 years.

Palmer points out that New Jersey will receive about $1.5 billion in federal funds during the next 13 years. New Jersey will add $342 million in matching funds and will spend another $130 million for state roads not included in the federal-aid program.

That adds up to slightly less than $2 billion—about $500 million less than the amount needed just to match the state's road requirements during that period, according to Palmer's estimates.

• **Bond issues out**—Governor Meyner has said that these figures make it obvious that additional road funds will be needed. He feels that toll roads are not the answer.

"With the New Jersey Turnpike and Garden State Parkway already in operation, we might expect diminishing returns from any similar projects in the future," Meyner commented.

He also rejected as "totally unacceptable" a proposal for a $300-million bond issue.

Meyner criticizes bond issue proposals on the grounds that: "We would not only have to put out the money to build the roads; but we would also have to pay . . . the interest on the bonds—and interest rates are increasing."

• **Major projects**—Highway commissioner Palmer listed eight interstate highways in New Jersey that are slated for major improvements. They include Routes 1, 3, 22, 46; a new route from Suffern to U. S. 1 at Woodbridge, via Morristown; and a new highway that runs from Trenton to the Delaware Memorial Bridge at Deepwater.

Two short connecting routes also are included in the interstate system. They are a link from the Goethals Bridge at Bayway to Route 22, and a link between the new Trenton-Deepwater route and the Camden-Philadelphia bridge.

The overall plan includes construction of urban freeways, dualization or widening of many existing routes, construction of overpasses, modern interchanges, wide shoulders, acceleration and deceleration lanes, and crash barriers.

Niagara License Requested; FPC Lawyers Go Into Huddle

The Power Authority of the State of New York finally resubmitted its application for license to develop water power available at Niagara Falls last week. And the Federal Power Commission had reportedly turned over the application to its law division for a ruling on its jurisdiction over the treaty-bound, international waterfall (ENR Aug. 16, p. 25).

The State Power Authority made good its threat to contest Congress' hold on the wasting water power at Niagara by asking FPC for a license in spite of the 1950 treaty with Canada in which the Senate reserved to Congress the right to determine who should build the needed power facilities below the Falls. A court fight seems inevitable.

In its application to FPC the State Power Authority asks the right to make use of water now licensed to Niagara Mohawk, subject to discussions with the company. Whether consent of Niagara Mohawk will be forthcoming is in doubt inasmuch as the company is launching into the rebuilding of Section A of the Schoellkopf Station, demolished by a rock slide in the spring (ENR June 14, p. 27).

New Bridge Outmodes Another Bay Ferry

Oddly distorted to the camera's eye is the 21,343-ft double-deck Richmond-San Rafael Bridge across the northern arm of San Francisco Bay. The new crossing was opened for traffic Sept. 1.

The structure has three lanes of traffic on its upper deck—now open—and will carry an additional three below. Connection to the lower deck was just being completed when the picture was taken.

The $68-million structure (ENR March 29, p. 42) contains two cantilever spans, each 1,070 ft long, to clear two navigation channels. It was built for the California Toll Bridge Authority by Judson Pacific Murphy-Kiewit, contractors. The new bridge will replace another bay ferry route, the ferries seen at left.

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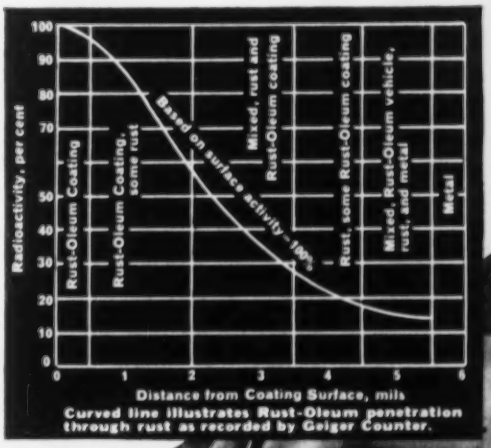

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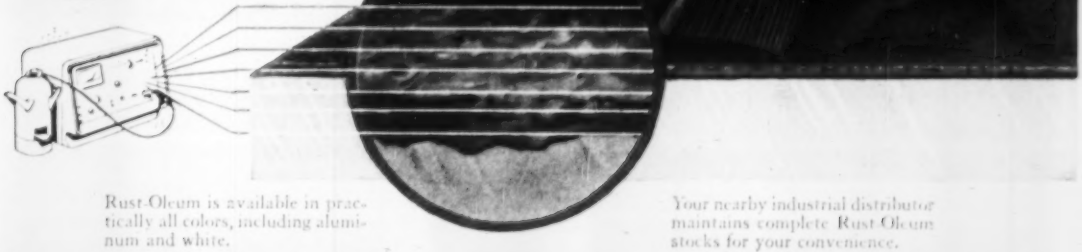

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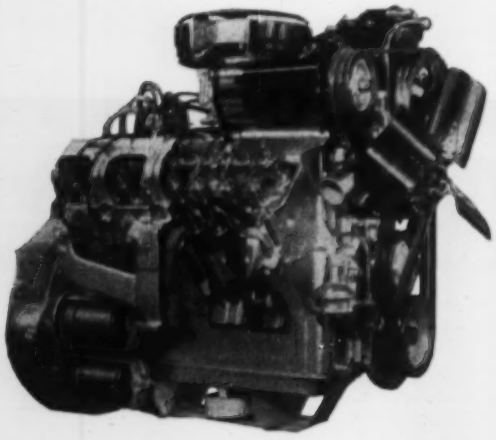

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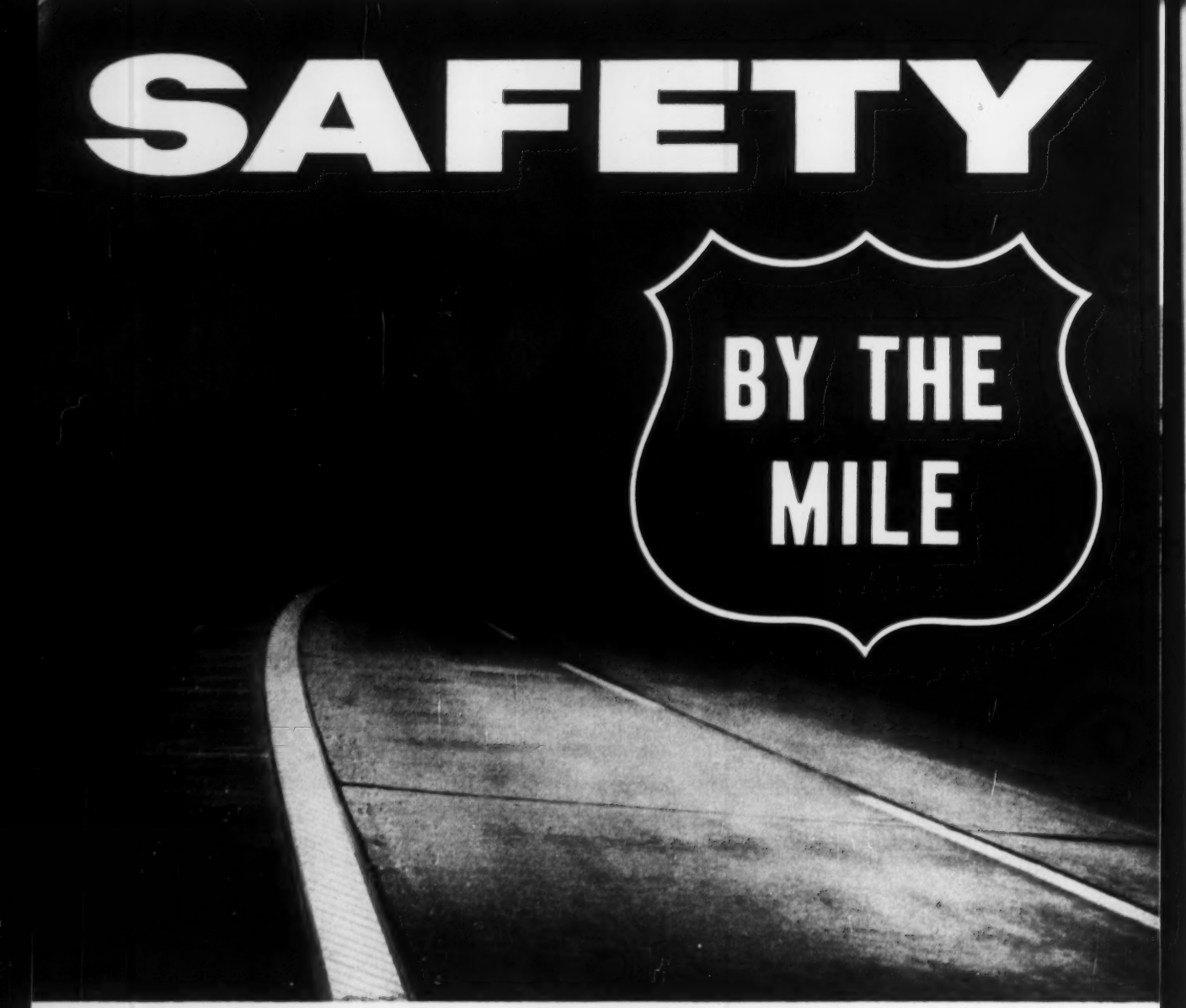

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State changes design of two projects as . . .

Steel Shortages Strike Home

The California Division of Architecture has changed the design on two major building projects as a result of the shortage and high price of steel.

The division converted the design on the $7-million San Francisco and $9-million Los Angeles state office buildings from structural steel and concrete to reinforced concrete. Bids will be called for both projects early next year.

In a report to Gov. Goodwin J. Knight the division said: "Steel shortages, particularly in heavy rolled structural shapes, are causing a reevaluation of design criteria on a number of state projects that originally proposed the use of large tonnage of heavy structural steel shapes."

On at least two major office buildings—Los Angeles and San Francisco—substantial savings in cost is indicated by changing the design from the originally contemplated structural steel with concrete to reinforced concrete construction.

As an example of the effect of steel shortages, the division noted that structural steel for the Department of Employment Office Building completed in December 1955, cost approximately $185 per ton fabricated and erected in Sacramento.

Structural steel for the Veterans Affairs Building, now under construction, cost $225 per ton fabricated and erected in Sacramento. This steel was delivered in January 1956. The latest project that required substantial tonnage of heavy rolled shapes was the Department of Employment Office Building in Los Angeles in which the steel cost approximately $325 per ton fabricated and erected in Los Angeles.

The best possible sources of information indicated a proposed cost of structural steel on the two office building projects—San Francisco and Los Angeles—at $350 to $380 per ton with delivery from 11 to 13 months after placement of the order. It was on these facts the decision was made to convert the design from structural steel and concrete to reinforced concrete.

The architectural division's report expressed concern at rising construction costs and noted that in the past several months state building work has drawn only one to three bidders compared to six to eight a year ago for similar projects.

"Obviously the lessening competition on all major construction projects ultimately and invariably reflects in higher prices," the division pointed out. "A marked rise in building construction cost has been experienced since Jan. 1, 1956. According to the latest bids received by the division and based upon cost estimates prepared in December 1955, it is apparent that overall building costs have risen 10 to 12% during the past six months. Involved in this price increase are approximately 15% wage increases granted organized labor as a result of union and employer negotiations, with a lesser increase being experienced in material costs."

Barkley Dam Construction Scheduled to Start in April

The U. S. Corps of Engineers set a 7-year goal last week on completion of its $167-million Barkley Dam, powerhouse, lock and interconnecting canal on the lower Cumberland River.

Col. Eugene J. Stamm, Nashville District Engineer, said if everything goes according to the schedule the Corps has set up, the finishing touches will be put on the project's final phase—the powerhouse—in 1963.

"Exploratory drilling operations are being conducted by three separate contractors and by government forces on an 'around-the-clock' basis already," Colonel Stamm said.

"It is expected that this work will be sufficiently advanced by next April to permit construction to begin on the lock," he said.

The first construction contract, Colonel Stamm said, will be for construction of this cofferdam and excavation for the lock itself.

"Contracts for construction of the dam, for powerhouse equipment, and for the powerhouse, will follow," he said.

About a year before the generation of power begins at Barkley, Colonel Stamm said, the lower Cumberland basin will have been transformed from a narrow river bottom subject to unpredictable floods into a massive lake paralleling the Tennessee Valley Authority's Kentucky Lake, a few miles to the west.

The ambitious lower Cumberland project will force the evacuation of two small river towns, Kuttawa and Eddyville.

Civic leaders in the two towns already have under consideration a merger into a single city. The new city may be named Barkley, Ky., in memory of the late Sen. Alben W. Barkley, Paducah, former vice president, for whom the project is named.

In addition to properties in the two towns, Colonel Stamm said, thousands of acres of bottom-land farm property must be acquired.

Building Waits to Get Its Footing

Usually foundations go in first—all at once. But builders of this mammoth 325,000-sq ft mill for the American Brass Co. at Paramount, Calif., are just now getting around to the foundations to carry their heavy machinery. Reason: The flood last year at the company's eastern plant absorbed all the firm's engineering talent for clean-up, and the company didn't want to delay construction until the engineers would have time to work out machinery placement.

For the foundations, 17,000 cu yd of concrete will be cast. Walls are asbestos-cement siding and the roof is metal decking. Cost of the steel-framed building is $18 million including equipment. Completion is scheduled for July '57.

Rosendahl Corp., Los Angeles, Calif., foundation and enclosure work contractors on the job, have also been awarded the contract to complete construction and install all machinery and mechanical work.

STANG SETS A WELLPOINT RECORD

Note shovel marks next to concrete weight in foreground of photo. This clearly indicates how well the earth is stabilized—no sloughing—no extra hand work required.

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This 150 miles of 30-inch natural gas pipeline through southern British Columbia is being laid for the Pacific Northwest Pipeline Corporation by Sparling-Davis Co., Ltd. of Canada. In order to complete the 24 miles of dewatering required on the job within approximately 60 working days Stang field engineers contemplate stepping up the working schedule sufficiently to end up with a 2000 foot daily pipeline installation average for the entire job. Don't slow down your production because of groundwater—use Stang Wellpoints and engineering services to protect your job profits!

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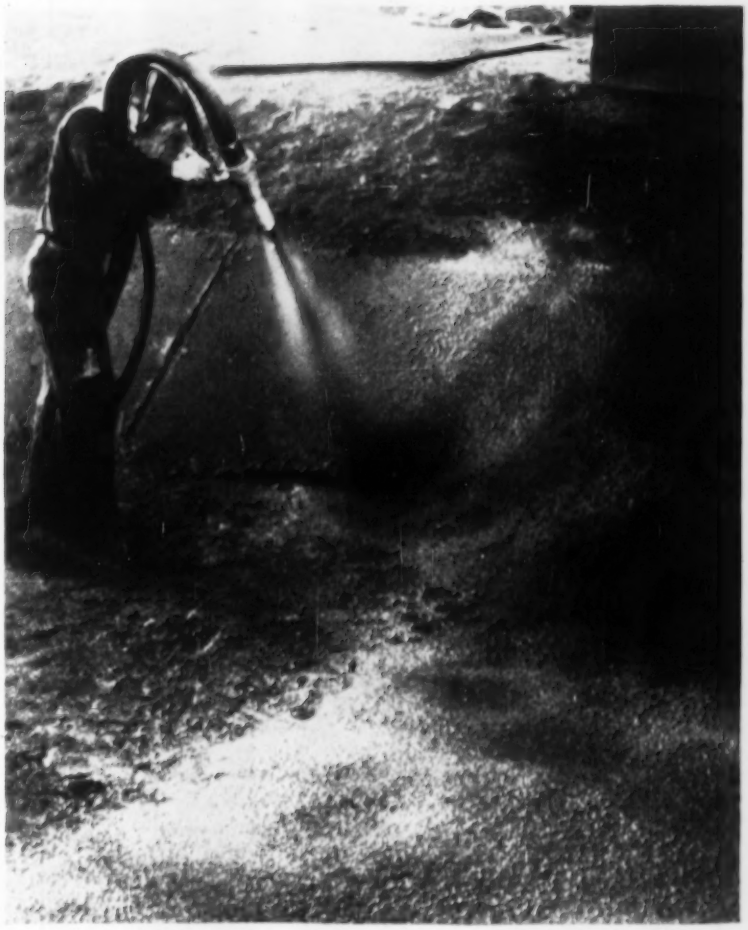


CANAL IS COATED with an asphalt emulsion mortar using modified gunite equipment during tests in California. Mortar includes asphalt emulsion and portland cement as well as sand and water.

Flexible and Durable . . .

Asphalt Gunite Is Used to Line Canals

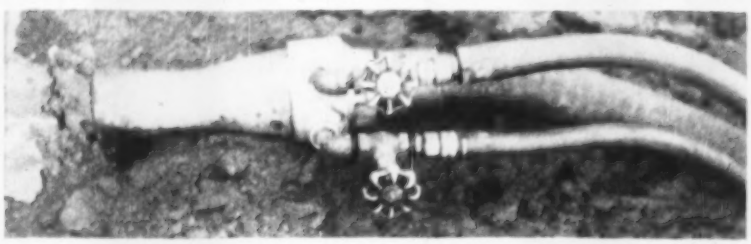
A new asphalt gunite process, designed to provide a flexible and durable wearing surface for canals and reservoirs, has been developed through a series of experimental tests in California.

Official designation of the process is "pneumatically applied asphalt emulsion mortar." And that is a fair description for the material includes sand, portland cement, emulsified asphalt and water. As equipment used to place it is modified from conventional "gunite" facilities, the entire process has become known in the field as "asphalt gunite".

The test installations now in their second and third season of service have proven that a non-rigid, water-impermeable, erosion-resistant lining can be applied by the new procedures.

The best mixture developed by the test procedure calls for about 12% emulsified asphalt (SS-1), 3 to 5% portland cement, about 10% water and the rest sand (percentages are in terms of percent of dry weight of sand). The sand is same as that used for conventional gunite (a representative gradation used is more than 95% passing a No. 8 screen, from 40-45% passing a No. 20 screen, about 20% passing a No. 40 screen, about 5% passing a No. 80 screen and less than 2% passing a No. 200 screen).

Modifications of conventional gunite equipment include an improved water ring for better mixing in the nozzle and an extra hose line to provide separate sources for the emulsion and the water. The sand-cement is transported to the nozzle through a 1½-in. ID hose at a pressure of about 60 psi. Water and asphalt emulsion are introduced through separate 1-in. hose lines each of which is valved to control the amount of emulsion or water.



NOZZLE IS FED by three hoses instead of the usual two. Extra hose is for asphalt emulsion. Valves control flow of water and emulsion.

• **Asphalt gunite history**—Pneumatically applied asphalt emulsion mortar was first attempted on canal linings

. . . Test linings of asphalt gunite stand up well

BEFORE and ONE YEAR AFTER *lining an Orland project lateral. Process is intended for use on new linings for small canals as well as for repairing linings on bigger units.*

by the U. S. Bureau of Reclamation in 1947 on the Ridenbaugh Canal near Boise, Idaho. In this first experimental lining work, liquid asphalt (RC-0 cutback) and a mixing-type emulsified asphalt were substituted for portland cement as a binder for the sand. This was applied over the surface of a partly deteriorated concrete lining to a minimum thickness of ½ in. A second installation attempted thinner coatings. After a year's service, both installations showed distress due to peeling from the concrete and to erosion.

In spite of this early experience, Bureau of Reclamation engineers decided that this type of lining still had possibilities if a method could be developed that would enable the mortar to harden or set within a shorter period of time after application. If this could be done, the asphalt binder should provide toughness, imperviousness and flexibility without the characteristic problem of cracking usually associated with conventional gunite. USBR engineers thought that the hydration of portland cement would accelerate the "breaking" of the asphalt emulsion and thereby provide a hardened lining.

In early 1954, two installations were constructed by the USBR at the Orland project in California. Principal modifications to the original Idaho work were the addition of portland cement and use of additional water.

Primary purpose of the Orland work was to determine if a tough, water-impermeable, erosion-resistance, durable and pliable lining could be constructed by pneumatic methods using asphalt. Other objectives included the development of proper construction procedures and equipment requirements. The investigations also considered cracking and the control of cracking, weed growth control and rebound problems.

Part of the Orland work was conducted on a main canal having a capacity of 250 cfs, water velocity of 5.2 fps, wetted perimeter of 25 ft, bottom width of 15 ft, water depth of 2.5 ft and 1½ to 1 side slopes. This canal is continually filled with water from March to October. And it carries a silt, sand and gravel load. It had an existing concrete lining that was in a badly damaged condition. Larger holes in the lining were filled with gravel or lean concrete mix prior to applying the asphalt gunite.

The other installation was on a small unlined lateral that is filled with water intermittently in accordance with irrigation demand. This lateral has 10 cfs capacity, 1 fps velocity, wetted perimeter of 12 ft, bottom width of 4 ft, water depth of 2 ft, and 1½ to 1 side slopes.

On these two jobs, thicknesses of both 1 in. and 2 in. were applied. Water percentage was varied from 8 to 11%—in addition to water already in the emulsified asphalt. Asphalt content was varied from 8 to 13%. Portland cement content was in the following percentages—0, 3, 5, and 10.

The work was done by Johnson-Western Constructors, who did considerable experimentation at their Oakland, Calif., yard prior to moving on the job. In this work they received advice and assistance from American Bitumuls & Asphalt Co.

• How it's done—The application procedure begins with sand and cement batched together in the hopper of an 11-cu ft mixer. This mixture was transported by conventional gunite procedures to the nozzle at a pressure of about 60 psi. Emulsified asphalt stored in insulated tanks was conveyed to the nozzle through a 2-in. hose by a gear pump developing about 120 psi. Water was introduced through a separate 2-in. hoseline.

Proportions of asphalt and water were controlled by the contractor by varying the pump pressures and by valve settings at the nozzle. Percentage was measured by hourly checks of quantities drawn from calibrated storage tanks. Minor adjustments were made in accordance with hourly checks of the material used.

All of the 1954 work was done during weather that was extremely poor from a construction point of view. Temperatures were generally in the low ranges, sometimes approaching freezing in the early morning hours. A severe wind and rain storm occurred in the mid-construction period. But no damage resulted to the lining already placed except in those areas that did not have any portland cement added to the mix.

Based on favorable results of lining at Orland, USBR engineers decided to broaden the scope of possible usage by making an installation on a large canal. For this installation, a reach of the Madera Canal was chosen that had three conditions favorable to the investigation: existing canal was unlined, considerable seepage was occurring, and a siphon at the upstream portion of the experimental reach caused turbulence creating an erosion more severe than normal. This portion of the Madera Canal has a capacity of 625 cfs, velocity of 2.73 fps, wetted perimeter

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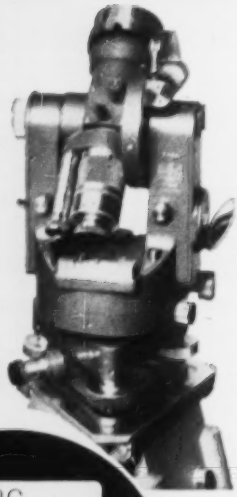

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. . . Control of the mix is important

EQUIPMENT *includes conventional gunite machines with addition of an extra tank truck for asphalt emulsion.*

of 52 ft, bottom width of 20 ft, water depth of 7 ft, and 1½ to 1 side slopes.

The lining was constructed 2 in. thick on the side slopes and 3 in. thick on the bottom. Additional thickness on the bottom was needed because of wetness and irregularity.

All the Madera work called for 12% asphalt emulsion. For the side slopes, 5% portland cement was used and for the bottom 5% portland cement. The additional cement on the bottom was to assure faster hardening in the presence of the wet subgrade.

Here again weather conditions were decidedly unfavorable. To help overcome the natural moisture in the air and on the canal, a small sand drier was installed so that about 50% of the sand was heated before going into the nozzle. The sand-cement mixture was thus about 120 F with the mortar temperature being from 70 to 80 F immediately after application.

On the Madera work, an attempt was made to meter the water and the asphalt emulsion. The latter device did not work and regulation of the asphalt was subsequently turned over to the nozzleman and the foreman who controlled the asphalt emulsion pump.

Cost of the asphalt gunite lining is comparable to other lining or sealing methods. At Orland, USBR costs were $2.10 per sq yd for each 1-in. thickness. At Madera, cost ran up to $2.94 a sq yd for a 2-in. thickness.

Rebound does not appear to be a significant problem. At Orland, nothing was done to the rebound and after a year's operation the rebound layers were still intact. At Madera, an attempt was made to penetrate the rebound with a seal coat, but full depth penetration could not be obtained.

The two test programs demonstrated that asphalt gunite work can be done during the winter months. No work was done during periods of severe freezing. Heated sand helps during cold-wet weather work. And it is thought that heating the emulsion would help too—although this was not done in either test program.

The tests also demonstrated that the material would bond to old concrete linings.

The most desirable range (3 to 5%) of portland cement content was established. The asphalt gunite with no portland cement was subject to erosion particularly during the first few days. And the section with 10% cement showed some initial shrinkage cracking.

Water content was also shown to be important. If the mix was too wet, the mortar would tend to run down the sides. And if too dry, rebound was excessive—more than ¼ in.

In addition to the contractors, Johnson-Western Constructors, many individuals have contributed to the development of asphalt gunite. Included are I. M. Ellsperman, USBR, Denver; L. H. Kristol, formerly civil engineer with the USBR in California, and F. N. Finn, area engineer, The Asphalt Institute, Sacramento, Calif. Aiding work at Orland was R. W. Hollis, irrigation manager, Orland Project. And aiding the Madera work was A. F. Greenlaw, USBR resident engineer.

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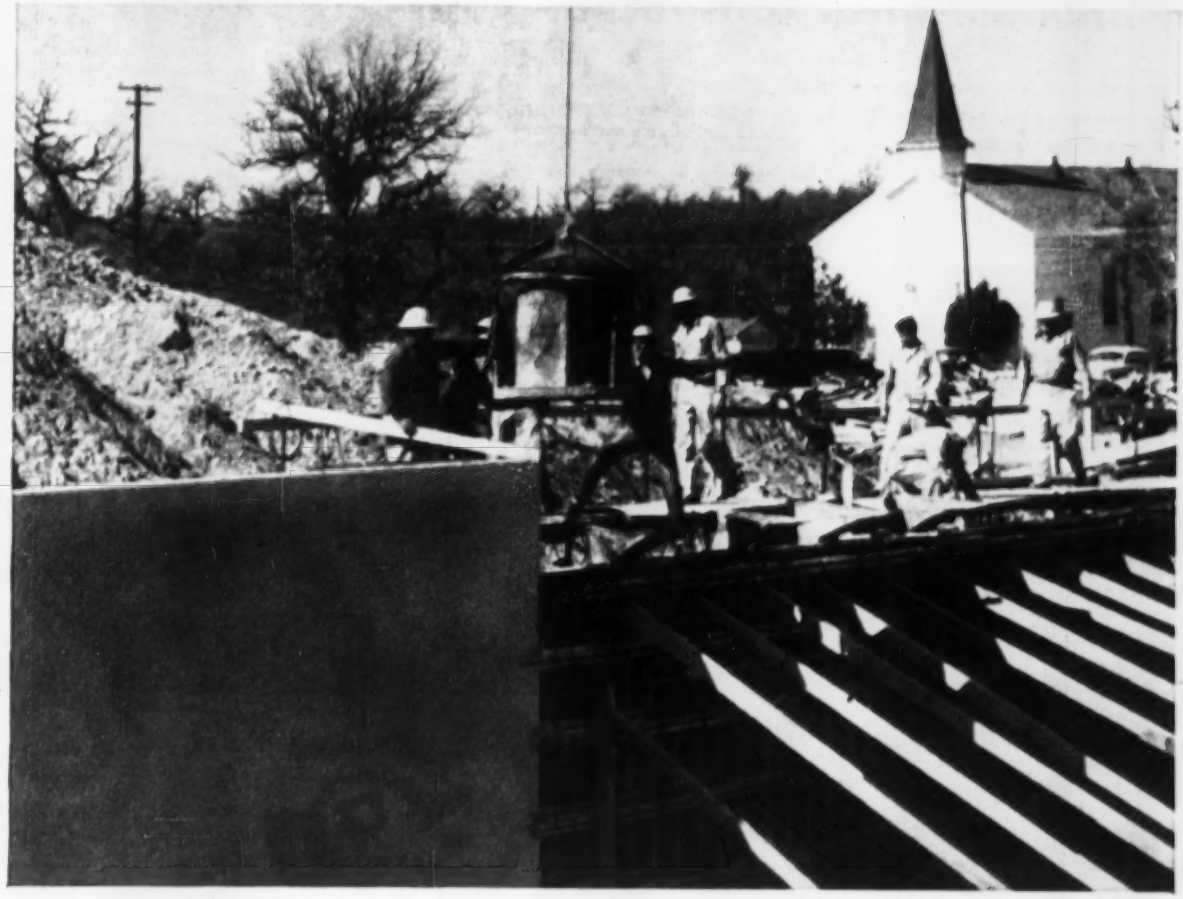

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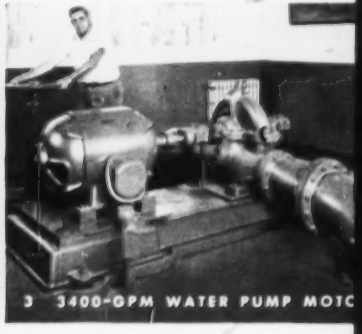

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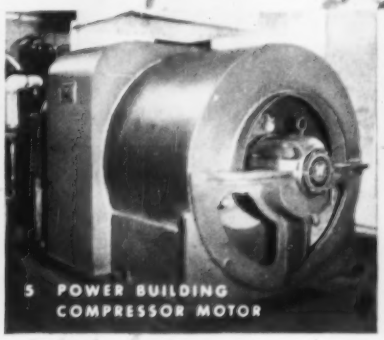


5 POWER BUILDING COMPRESSOR MOTOR

6 MOTOR CONTROL UNIT

Groined arch roof of a Palo Alto, Calif., market highlights simple architectural treatment. The 85 Purity stores built since 1938 are of arched construction. This is the first of several planned with intersecting arches

Six Three-Hinged Arches Form Market

H. M. Engle
Civil and Structural Engineer
San Rafael, Calif.

A recently completed market building at Palo Alto, Calif., features a central groined roof dome formed by a combination of six three-hinged steel arches. And it includes diagonal arches that intersect at the midspan with a unique detail permitting rotation in both directions. Three additional markets of similar construction are planned at Eureka, Mill Valley, and Sunnyvale, Calif.

In plan, the building is 170x120 ft. The center 76-ft square area is topped by the two intersecting arch barrels forming the groined arch or vaulted roof. The arch roof is carried on four three-hinged face arches of 76-ft span and 12-ft rise. Completing the dome are two diagonal three-hinged arches of 107.4-ft span and 12-ft rise.

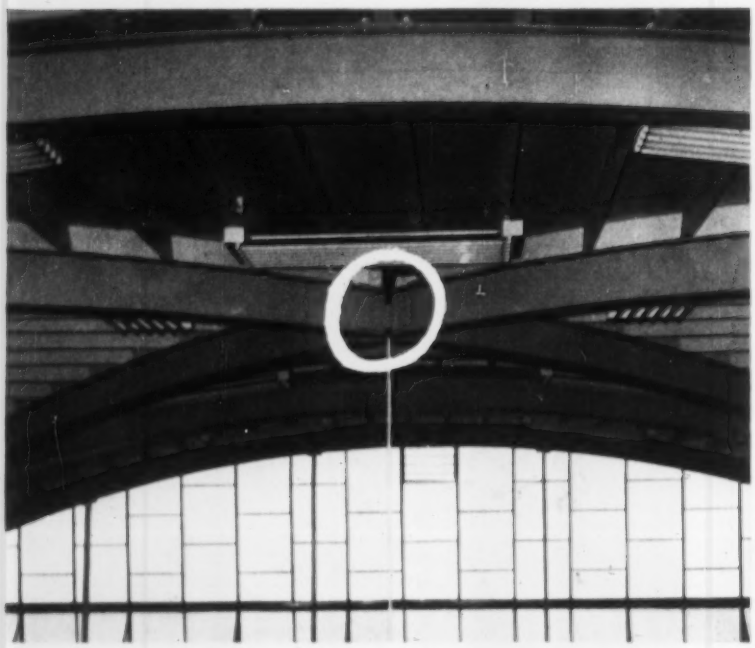
The face arches are 14 in., 43-lb, wide-flange sections. In fabricating these arches, the beams were split in two at the web center-line. Each half was bent cold to the required curved shape. Then the halves were joined by continuous welding.

The diagonal arches were fabricated of plates welded together to give a section equivalent to a 14-in., 78-lb, wide-flange beam (¼-in. web plate and ⅜-in. flange plates).

The center hinge for the diagonal arches is unusual in that it allows rotation in two planes at right angles. A circular steel-plate wheel assembly was worked out that is positive in allowing hinge rotation under arch deflection and yet was easy to erect.

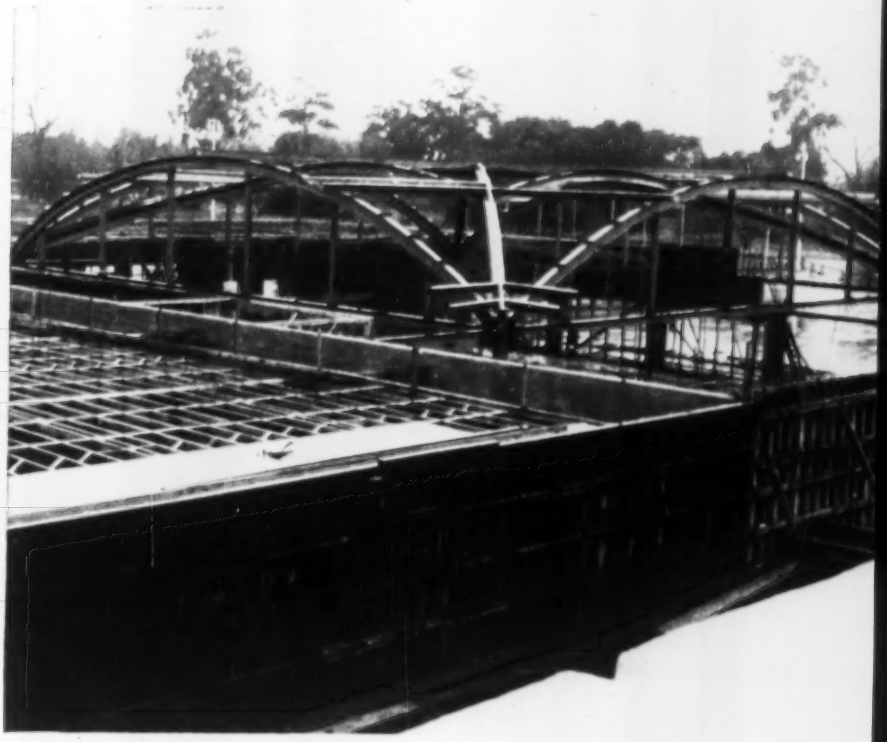
The hinge design calls for replacing the arch web material near the joint with 1-in. plates. These plates are milled at the joint end to 7-in. dia. Fitted between the ends of the arch halves is a pair of intersecting grooved wheels with the 7-in. dia groove fitting the milled part of the 1-in. web plates. The grooves are 1¼ in. wide.

To erect the double-hinged joint, one half of one wheel was temporarily left off. And one half of the



Easy to erect though unusual in design, the center hinge for diagonal arches presents a clean appearance, while it permits both arches to rotate.

Roof Dome



Six steel arches that form the roof dome include four 76-ft face arches and two 107¼-ft diagonal arches. All arches have 12-ft rise. Roofing is 3x8-in. timber joists on 24-in. centers with ½-in. plywood sheathing.

other wheel was fixed by welding to its mating arch web plate. Then the loose half wheel was positioned with its arch section and bolted to the rest of the intersecting wheels.

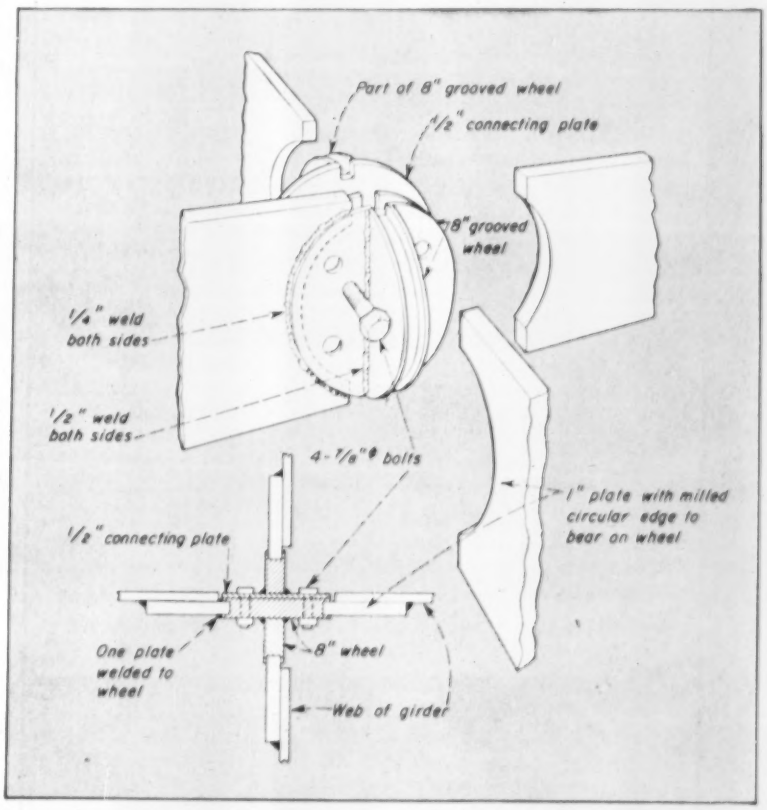
Thus, rotation is possible in both arches. And as this joint is always in compression, there is no possibility of the arches parting at the hinge.

The 8-in., 35-lb, wide-flange tension ties for the face arches also take thrust from the diagonal arches. In addition, the tension ties act as supports for the low roof, the loads being carried to the arches from the tension ties by vertical connecting members.

The grouped arch area is carried on four round tapered steel columns, 15-in. dia at the top and 24-in. dia at the base. These 2-in.-thick steel shells are designed to take all lateral and vertical loads. The columns are embedded in 15-ft-dia octagonal footings. They are designed as vertical cantilevers, fixed at the base, for a lateral earthquake force of 10% of the roof dead load plus live load. Each column top takes three arch reactions.

The steel column shells required special fabrication. They were heated for bending, and all joints were cut to a 60-deg V and butt-welded solid.

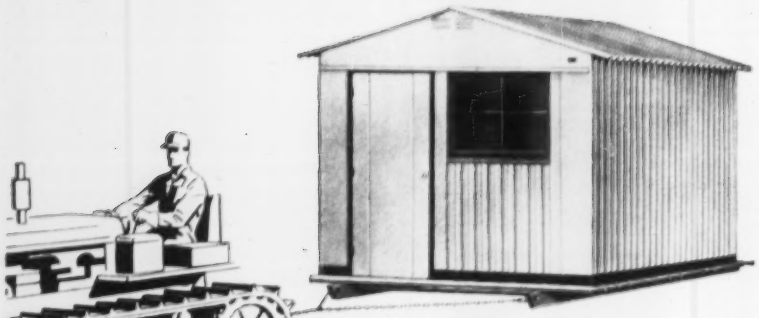
In addition, and as a safety factor, the steel columns are filled with concrete reinforced in the center with a spirally wrapped cage. This forms a reinforced concrete column that can take all vertical loads. Thus, damage to the exposed steel shell in a fire


Part of 8" grooved wheel
½" connecting plate
8" grooved wheel
¼" weld both sides
½" weld both sides
4-⅞"ϕ bolts
1" plate with milled circular edge to bear on wheel
½" connecting plate
One plate welded to wheel
8" wheel
Web of girder

Center hinge design allows rotation in two planes at right angles. Circular steel plate wheel assembly permits hinge rotation under arch deflection.

and *Away it goes...*

to the next job



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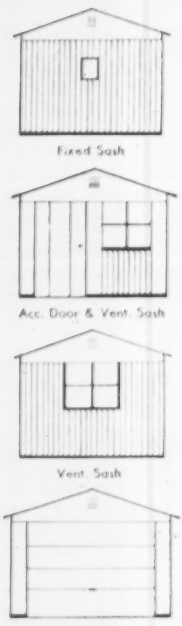

Typical of many side and end panel variations available.

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could not cause collapse of the roof.

The groined arches carry 3x8 timber roof joists on 24-in. centers and ½-in. plywood sheathing. The low roof is carried on open web steel joists with angle top chords. Exterior walls are of reinforced concrete.

• **Erection procedure**—For erection the columns and the tension ties were placed first. Then two truck cranes were called into action for erecting the arches. The diagonal arches were positioned with each truck crane handling half an arch.

This, of course, made a stable structural system. The face arches were likewise erected by the two truck cranes. And before the cranes released their load on each face arch, a tie to the diagonal arches was made.

• **Previous designs**—Arched-type construction is typical of the chain of markets built and operated by Purity Stores, Ltd., in Central and Northern California.

Timber arches were used in a few of the early markets. All of the later structures feature steel and reinforced concrete arches of either two-hinged or three-hinged designs. The two-hinged arches—both steel and concrete—are all of semicircular shape and 50-ft span. The three-hinged steel arches have been used with spans up to 85 ft. Some of these have vertical wall legs and straight sloping roof legs. Others have curved roof legs. And a few have legs curving on a double radius from the base hinge to the crown hinge.

• **Looks and costs are attractive**—Public reaction to the Purity markets has been good. This is particularly true of the new Stanford Shopping Center market described in the foregoing. Arch design is simple, clean-cut and pleasing in proportion and details. Natural lighting on the inside is excellent.

And cost was surprisingly reasonable, amounting to less than $11 a sq ft for the completed building, without store fixtures.

Architectural design was worked out by Harry Weese, architect, Chicago, Ill. The author has served as structural engineer for all markets in the Purity chain. And Younger Bros., Inc., has constructed all 85 Purity markets built since 1938. Schrader Iron Works of San Francisco has furnished the steel for most of the markets, and is responsible for developing special techniques required in the fabrication and bending of the arches. All markets in the Purity chain are designed and built under the direction of J. R. Niven, chief executive officer, Purity Stores, Ltd.

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One stone masonry pier of this bridge had been eroded and partially undermined by scour action. The deteriorated pier (foreground) was underpinned and rebuilt with dense, impermeable PREPAKT concrete, providing better-than-new condition and extreme weather resistance.

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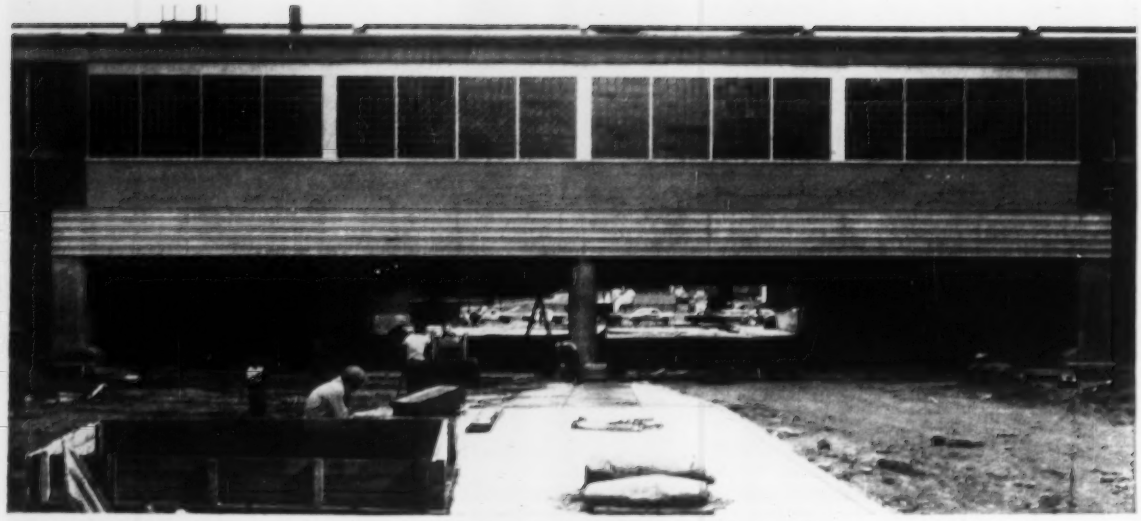


Extending Chicago's new 8-lane Congress Street Expressway under its old LaSalle St. railroad station developed into an unusual reconstruction project where . . .

Jacks Put Tracks on Precast Spans

Milton Pikarsky
Chief Engineer
Plumb, Tuckett & Pikarsky
Gary, Ind.

A superhighway through one of Chicago's major railroad passenger terminals has been recently completed. Chicago's Congress Street Expressway now runs beneath 11 main tracks of the LaSalle St. passenger station.

Track level in the station is at the 2nd floor level, elevated 15 ft above street level. This called for rebuilding the track structure to carry railroad traffic over the 8-lane divided expressway, which passes through the station just below the existing street level.

• **34 bridge spans**—Within the railroad station limits the Congress Street Expressway has a total width of 116 ft. Its two roadways are each 44 ft wide, separated by an 8-ft median and flanked on each side by 10-ft sidewalks.

Railroad traffic is carried over this 116 ft of expressway on 60-ft span deck-type bridges supported on piers outside of the sidewalks and on a central pier that is located in the median.

There are two spans for each of the 11 tracks and two lighter spans for each of six station platforms, making a total of 34 bridge spans. Each 60-ft span carrying railroad tracks is made up of four wide-flange beams, while the platform spans have only two lines of wide-flange beams.

• **The toughest problem**—The major consideration that made this remodeling project so unusual was that all essential operations of the railroads had to be adequately maintained during the entire construction period. This was one of the toughest problems from the standpoints of both design and construction.

At the track level there are about 9,000 train movements monthly involving over 130,000 railroad cars, which transport over 1,000,000 passengers, great amounts of baggage, express and mail. Such operations utilize the 11 tracks and 6 platforms.

• **Construction restrictions**—In order to maintain railroad service without serious interruption and to complete the work in the shortest time consistent with economy, the contractor had to comply with several restrictions. First, he could not take more than two tracks out of service at any time.

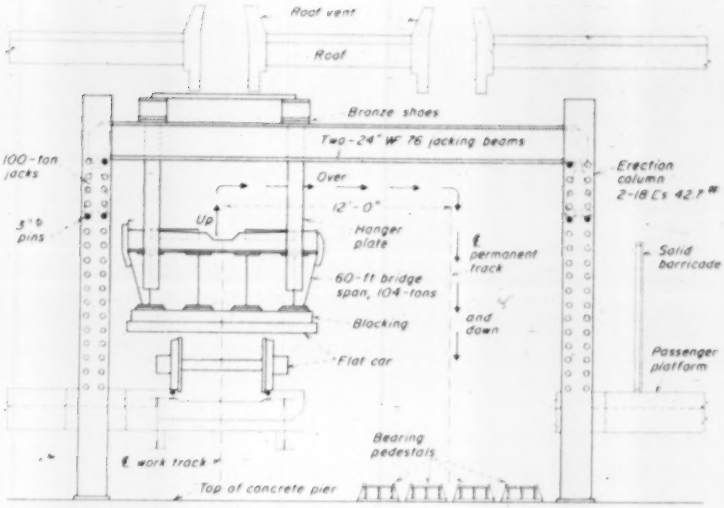
Here's the reason: Tracks out of service meant that 120 ft of rail from the bumping posts to the north side of the expressway, plus 120 ft of rail over the expressway roadways and sidewalks, and 40 ft of rail immediately south of Congress St. would become unavailable for railroad service. These 280 ft of track would deprive the station of 3½ car lengths for each track not in operation.

• **Solid barricades**—A second contract provision had a three-fold safety purpose. It required the contractor to completely enclose the 280 lin ft of working area with solid barricades 8 ft high. This was to protect the public and prevent interference with normal station operations by discouraging so-called sidewalk superintendents from blocking the station platform.

More important, however, the barricades provided the contractor with an enclosure within which he could work during any hours he chose. It also gave him a protected area for storing materials and equipment. The contractor was thus able to schedule his operations to his best advantage. For replacement of the track structure, the working area was 50 ft wide, and encompassed two tracks.

• **Heavy holiday traffic**—Another restriction was occasioned by heavy passenger, mail and express operations during the Thanksgiving and Christmas holiday seasons last winter. Consequently, all station tracks and platforms had to be kept in service for their entire lengths from Nov. 15 through Jan. 10. To meet this requirement the contractor was not permitted to begin any operations involving the track or platform structures which he could not complete by Nov. 15 of last year.

Finally, it was incumbent upon the contractor to complete the renewal



JACKING SEQUENCE: Each 104-ton, 60-ft bridge span was hoisted clear of its flat car by four 100-ton jacks, shoved 12 ft sideways by two 15-ton track jacks and lowered onto bearing pedestals atop the new piers.

of the track and platform structures with the maximum time of tracks out of service limited to a total of 150 calendar days.

After considerable study by the engineers of Chicago's Department of Public Works and the Rock Island and New York Central Railroads, a feasible solution to the problem was evolved, consistent with the restrictions. It was included in the contract documents as a suggested method of procedure. The low successful bidder, the James McHugh Construction Company, Chicago, elected to follow the suggested method.

• **Two decades of planning**—Working out the details and procedures of removing the old track-supporting structures and replacing them with the 34 new deck-type spans goes back several years. Planning for this section of the Congress Street Expressway began in 1939. By 1945 there was general agreement between Chicago, the New York Central and the Rock Island as to the method to use in carrying railroad traffic over the new expressway when it was built.

The new concrete piers supporting the new railroad spans were built as part of the present contract. Their footings rest on caissons which bear on hardpan 70 ft below street grade. Caissons for the center and south piers were built in 1947 just prior to the construction of the subway tubes that they straddle. The north line of caissons was completed in 1951.

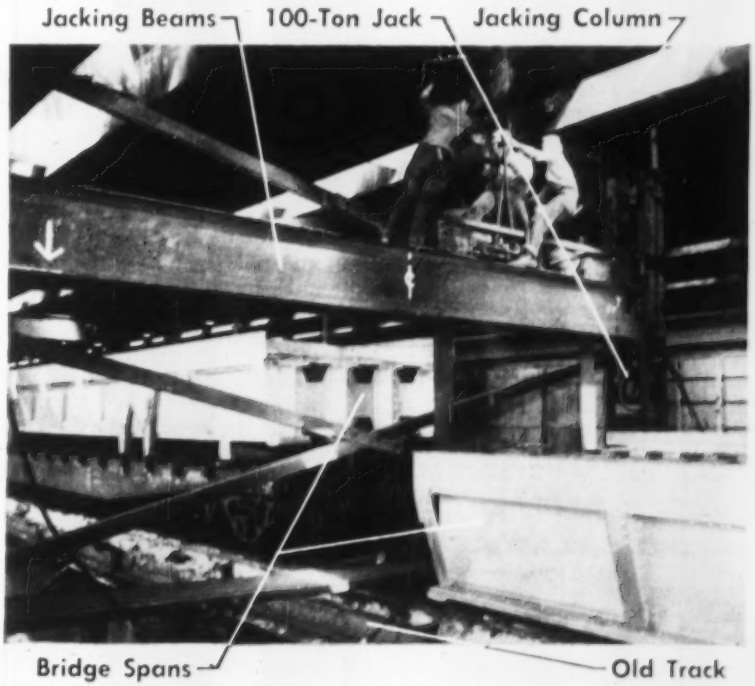
Originally, the 11 tracks were supported by plate girders carried on columns spaced 15 and 30 ft longitudinally, and 12 and 24 ft transversely.

Prior to the construction of the piers, the facilities of the railroads at street level were rearranged. These include taxicab driveways, passenger transfer service, baggage and mail handling facilities, railway express operations and numerous other services which were located in or were affected by the location of the expressway.

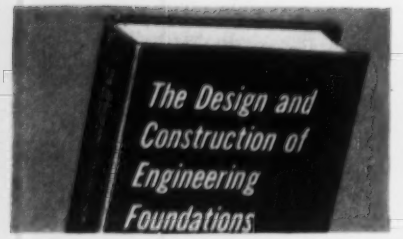
• **Erection procedure**—While this preliminary work was going on, the steel for the track and platform units was being fabricated at the American Bridge Company's Gary, Indiana, plant. Then, the track and platform spans were shipped to Chicago where they were completed in a construction yard furnished by the railroads. The yard was located a short distance from LaSalle Street Station. Two construction tracks were built and used to tie into the adjacent railroad yard.

After the spans had been completed, the contractor was permitted to take two station tracks out of service and begin construction of the necessary barricades. When the barricades were in place, one of the two out-of-service tracks and its supporting structure were removed while the other remained to serve as a "work" track. The erection equipment, consisting of jacking columns, jacking beams and hanger plate assemblies were then set in position.

A track span weighing 104 tons was loaded onto a flat car in the construction yard and brought into the railroad station on the work track which was adjacent to an open hole that had been cut in the old concrete floor. This area was formerly occupied by an old track and supporting structure. The new span was spotted with its ends directly under the jacking beams. The hanger plates were then fastened to the ends of the track



WORKMEN ATOP JACKING BEAMS operate track jacks to slide 60-ft, 104-ton bridge span sideways onto pedestals atop new piers in the open area from which old track structure has been removed.



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. . . Restored track becomes work track

BRIDGE SPANS (foreground) were assembled in nearby construction yard, complete except for the railroad rails. Platform units (background and at right of crane) required only two lines of wide-flange stringers.

spans; one hanger plate at each corner.

• **Heavy-duty jacks**—By means of 100-ton pneumatically operated jacks located inside each of the four packing columns, the packing beams were raised slightly, permitting the removal of the flat car. Next, using two 15-ton track jacks mounted on top of each packing beam, the hanger plate assemblies were moved 12 ft sideways until the track span was located directly above its final position.

After this, the packing beams were lowered about 10 ft until the track span was seated. A second span was then positioned on the work track and similarly set in place. Rails were then spiked on the new track structures. This newly restored track, in turn, became the work track for installing a second pair of deck spans replacing the original work track. A service walk was then suspended between adjacent track spans.

After the construction of a pair of tracks and their supporting structures, the contractor temporarily omitted the installation of a loading platform. Instead, he erected the next pair of tracks and their supporting structures. One of these new tracks became a work track, while a temporary platform was laid over the other. The existing platform span was then removed and passenger traffic detoured over the temporary walkway.

• **Platform erection**—Each 60-ft span loading platform weighed 50 tons. Like the heavier spans, they were fabricated in the construction yard and moved into the station on flatcars. Two self-propelled railroad cranes towed the flatcar into position and erected the platform span. The cranes had specially designed short booms, since vertical clearance within the station was limited to 16 ft.

• **Engineers in charge**—Plans for the $3-million reconstruction project to carry railroad traffic over the expressway as it passes through the La Salle Street Station were prepared by the Bureau of Engineering of Chicago's Department of Public Works. George L. DeMent is commissioner and Dick Van Gorp, chief engineer.

Both railroads assisted with the designs and construction supervision. F. H. Simpson and W. B. Throckmorton are chief engineers for the New York Central and Rock Island, respectively. The author served as liaison between the railroads and Chicago. Steel erection was by the F. K. Ketler Co., Chicago.

Construction of the entire project is under the general supervision of J. Walter Grimm, assistant chief engineer, Chicago. A. R. Kinder is resident engineer. General contractor is James McHugh Construction Co.

New Trade Group to Certify Cold Cathode Products

The Cold Cathode Association, Inc., located in New York City, has been formed by a lighting industry group that intends to set up a certification program for cold-cathode lighting products. Manufacturers of products meeting CCA specifications will have the right to use the association label.

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$54 Buys Faster Gate Closure

A $54 investment by the Pueblo (Colo.) Conservancy District could mean the prevention of heavy damage and the saving of countless lives should Arkansas River flood waters ever again threaten the city.

The investment includes a tooled steel socket sleeve and a power chain saw transmission. Combining them allows the raising or lowering of the Conservancy District's huge 2,200-lb floodgates on the Southern Colorado Power Co. spillway by two men in less than 30 minutes.

Previously, the heavy gates—there are three—were manipulated by hand-operated cranking mechanisms, requiring six men, working at top speed, an hour to raise or lower the gates, according to John M. Holmes, Conservancy District president. The new system thus cuts the gate operation time more than 50% and reduces the manpower requirements 66%. But the main advantage is the half-hour additional flood insurance it provides against flood waters.

Mechanizing the raising and lowering of the gates is the idea of V. R. Blackburn, of Pueblo, president of the Blackburn Engineering Co. and one of the Conservancy District's consulting engineers. During one of the regular tests of gate operations, Blackburn was struck by the time-consuming and difficult task of hand-cranking. When he recalled the devastation wrought in the city by the flooding Arkansas River on June 3, 1921, he shuddered.

That catastrophe, in a few hours, destroyed 510 homes and 98 buildings and washed 61 other industrial plants from their foundations. Property damage was estimated at $19 million. To this day, no one has been able to say exactly how many died in the flood. Estimates range from 96 to more than 200.

But the city dug out from the debris, and, at a cost of $11 million, built a new levee and flood control system. Would this investment be wasted, Blackburn wondered, if the outmoded method of operating the floodgates should fail in another emergency? He searched his mind for a way to improve the method.

NEW Chain-saw gas engine provides cranking power through post-hole digging transmission to close flood gate in as little as 5 minutes.

OLD It took two men an hour and 1,000 turns of the crank.

• **1,000 turns by hand**—During the next regular check of the gate operations, Blackburn watched as the men hand-operated the gate mechanisms. Two men worked on each gate, one spelling the other as he tired. Blackburn asked the men to count the number of turns necessary to lower a gate. They counted to 1,000.

The mechanism's gear ratio of 8 to 1, with approximately four teeth to the inch, indicated 32 turns of the crank were required to lower a gate 1 in. Each gate must be lowered 63 in. to prevent the low-lying area behind them from being flooded. Blackburn needed a method that would speed the gate operation, yet would be feasible and economical enough for the district to undertake. When he submitted his idea, Conservancy District board members raised their eyebrows.

The district owns a gasoline-powered chain saw which has been used for the past several years to clear heavy brush and timber from the river channel. Blackburn proposed the purchase of a post-hole digging transmission attachment for the saw and the local manufacture of a tooled steel socket sleeve he designed. The sleeve cost $9 and the transmission $45. The sleeve fits snugly over the exposed crankshaft end of one of the gate gears.

• **5 minutes now possible**—This summer, in its first test, the "mechanization" of the gate operation proved an outstanding success. Running the saw transmission at less than peak speed, each gate was lowered in 7½ minutes. If it became necessary, as in a flood emergency, the machine could be operated at capacity speed

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and the gates lowered in five minutes, Holmes and Blackburn said.

In this section of the country, where flood waters move at express-train speed, precious little time is available between the sounding of a flood warning and completion of preparations to withstand one. With the new mechanical operation, valuable minutes can be saved by requiring the call of only two men to man the flood gates instead of six, as well as the speedup in lowering the gates.

Army Engineers at Albuquerque, headquarters for the Upper Rio Grande Basin, are enthusiastic about Blackburn's idea. The engineers, who provide aid and advice to flood control districts like Pueblo's throughout the West, believe the idea is readily adaptable for use by small districts with modest operating budgets. There are many similar conservancy districts with flood control projects like Pueblo's throughout the length of the Arkansas River from Leadville, Colo., to Great Bend, Kan., as well as along the Rio Grande and Pecos River basins in New Mexico and Texas.

In the Pueblo system, the floodgates prevent the backup of Arkansas River water into lowlands east and north of the river. Their rapid closing is imperative to prevent flooding in this area. A basin behind the gates is designed to contain an estimated 10 acre-ft of water.

U. S. to Host for World Irrigation-Drainage Group

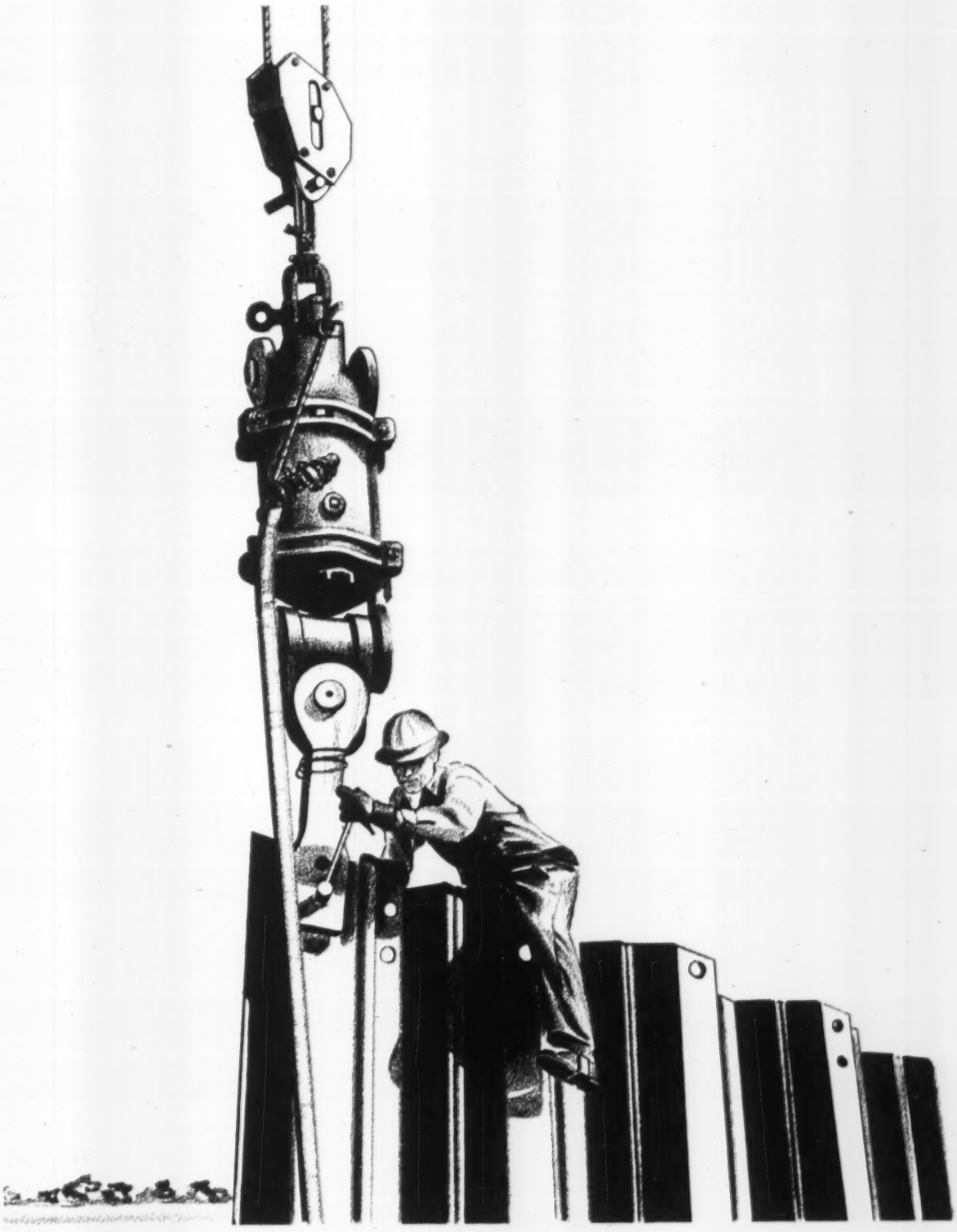
The Third Congress of the International Commission on Irrigation and Drainage will be held in San Francisco next spring, with representatives of 34 member countries expected to attend.

This third congress of the organization will follow that in India in 1951 and a second in Algeria in 1954. The U. S. national committee will be host.

April 29 to May 4 are the dates for sessions in San Francisco's Sheraton-Palace Hotel. The meetings will be followed by a two-week study tour intended to show delegates both private and public water developments of the West in addition to plants manufacturing irrigation equipment and machinery.

Walter E. Blomgren, consulting engineer of Denver, Colo., is chairman of the U. S. committee, and Prof. Frederick L. Hotes of the University of California is in charge of local arrangements for the meeting.

Information on the third congress may be obtained from the U. S. National Committee, International Commission on Irrigation and Drainage, P. O. Box 7862, Denver 15, Colo.



Size 800A Vulcan Pile Extractor pulling interlocking sheet piling of cofferdam for bridge pier construction on Calcasieu River in Louisiana.

VULCAN IRON WORKS INC. CHICAGO, U.S.A.

"Usable" horsepower replaces engine size as gauge of shovel-crane power

It's important to judge shovel-crane work potential on the basis of usable horsepower rather than engine size. Proof: size for size, a Link-Belt Speeder delivers up to 40% more horsepower than other machines having the same make and model engine. And greater usable horsepower is bonus power that pays off in easier digging, faster cycles, more production and profits.

The variation in the amount of power a given model engine actually makes available in the form of line pull (or power at the drums) is determined primarily by the net horsepower the engine delivers at the output shaft. Engine Model X, for example, when run at 1200 rpm, develops *75 hp*. At 1600 rpm, it develops *100 hp!* That's a difference of 33% in *usable hp!*

Equipment must be designed and built to handle extra usable horsepower and speeds

Because the Link-Belt Speeder line is industry's most advanced in design—17 new models—it incorporates the latest developments in engineering, metallurgy and fabricating. As a result, every Link-Belt Speeder is an "extra strength" machine—a shovel-crane with the added guts and stamina to take full advantage of the bonus horsepower available (within recommended operating speeds) in any engine.

A Link-Belt Speeder's extra strength is evident in its

MORE USABLE HORSEPOWER permits the operator of this Link-Belt Speeder K-360 to "sock" the bucket into the cut . . . come up with a full load fast, first pass. There's no need to "shave" the bank or back off for fear of stalling.

upper and lower frames. They're all-welded, and by the most modern processes including the submerged arc technique to assure deep penetration. Then, as are all major weldments in a Link-Belt Speeder, frames are stress relieved. This assures greater strength and freedom from dangerous shrinkage strains and hidden stresses that might cause failure and warpage.

Heavier components handle heavier loads

More evidence of a Link-Belt Speeder's extra strength is available upon examination of shafts. They have extra size and heft . . . are made from tough, high-alloy steels and precision-machined. What's more, all shafts are splined for greater strength and less wear . . . maximum power transmission efficiency.

Then, too, clutches are designed and built to handle additional power with ease. They have alloy-cast iron clutch drums (the finest friction material known). Lining material was carefully chosen on the basis of how it would work in conjunction with drum material. This, plus basic design, results in clutches that can consistently take the full operating pressure of the engaging forces with maximum effectiveness and smoothness—but with little chance for uneven wear.

Other noteworthy clutch features: generous size swingers and drum clutches . . . most models have interchangeable clutches within each model . . . and all clutches are self-compensating for heat and normal lining wear.

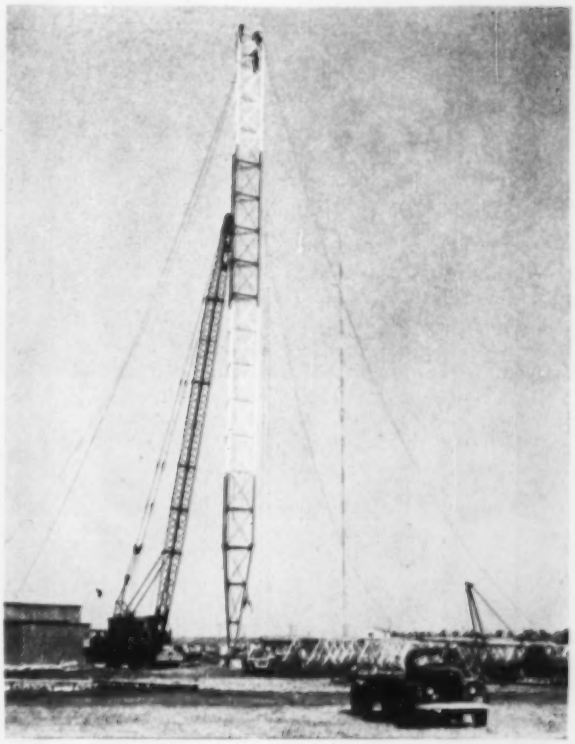
Are you paying for power you never use?

If you don't have a Link-Belt Speeder on the job, chances are you're passing up a great opportunity to increase your production and profits without the need for going to bigger machines. Why not have a talk with your Link-Belt Speeder distributor today? He has many field reports to back up the Link-Belt Speeder usable horsepower story. Or write—LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA. 14.218

LINK-BELT SPEEDER

Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls

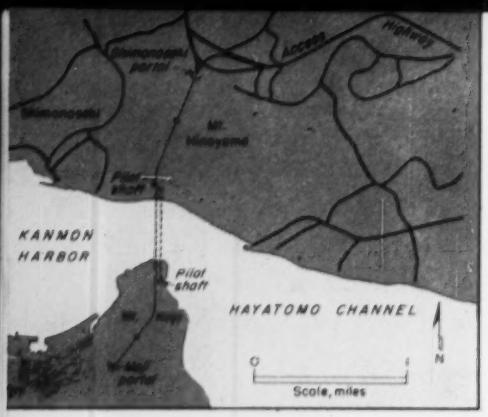
POWER HYDRAULIC CONTROLS, a Link-Belt Speeder exclusive, are fingertip operated. The operator gets fast, positive, easy response and perfect "feel" to take full advantage of his machine's added usable power . . . further increase daily output.



EXTRA POWER MEANS EXTRA SAFETY IN CRANE WORK. Large, heavy loads can be handled more safely . . . at any speed and with greater speed range selectivity.

FASTER MACHINE MOVEMENT is another benefit resulting from greater usable horsepower. This Link-Belt Speeder heavy-duty ¾ yard LS-88 has the extra power not only to dig, but also to swing, hoist, dump and travel.

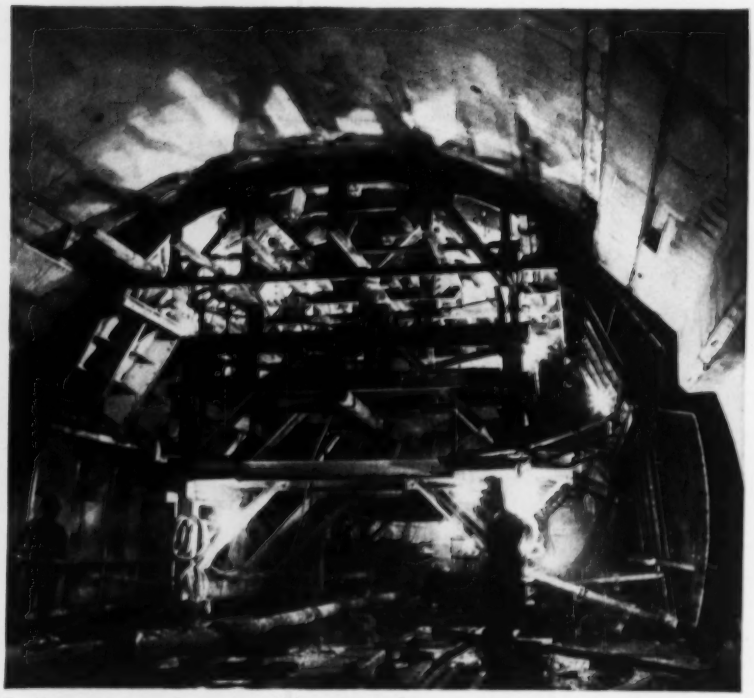
Traffic Tunnel Is Biggest



Kanmon Tunnel, a two-story tube linking the islands of Kyushu and Honshu in Japan, is now nearly complete after two decades under construction. At right is topside view of route.

Lots of hand labor went into most phases of the tunneling operation.

Close quarters and hazardous working conditions were a constant threat.



Roller-mounted expansible steel form moves forward to receive next batch of concrete in dangerously eroded, subaqueous section of the tunnel.

Japanese Job

Well over half-finished—after 21 war-interrupted years—is Kanmon Tunnel, a 2.16-mi bore that will link the Japanese islands of Honshu and Kyushu across Shimonoseki Strait. Slated for completion in March, 1958, the $22-million tunnel has been under construction since 1937 and is claimed to represent a whole collection of firsts for the island nation.

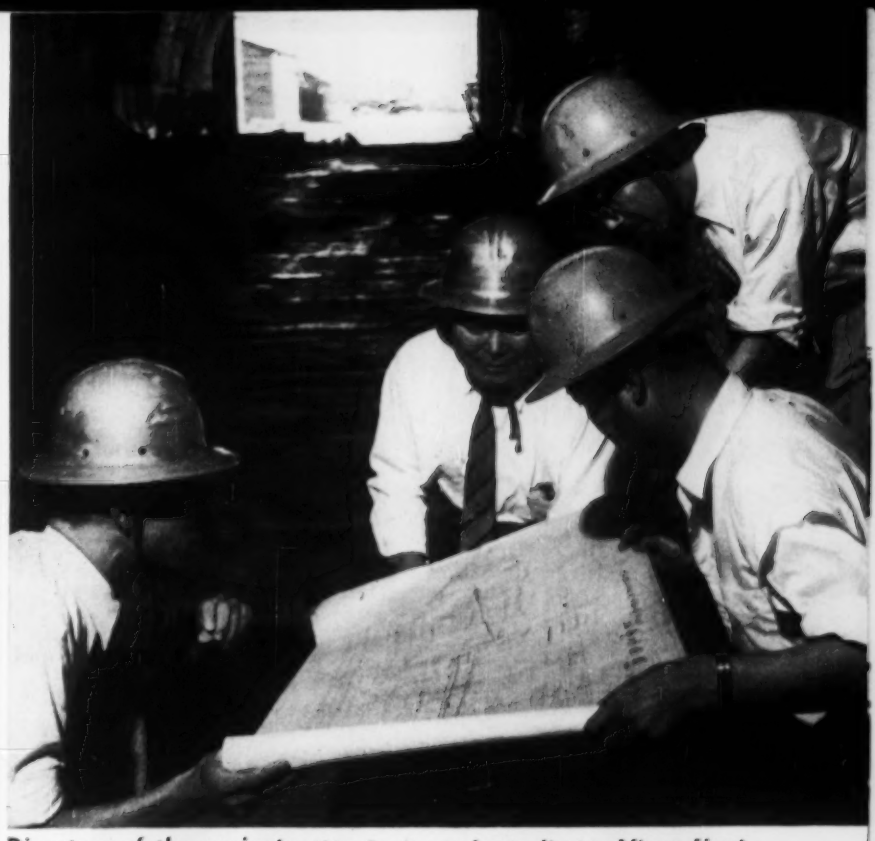
- It is the largest construction project ever performed by Japanese engineers and technicians without foreign aid or advice.
- It is claimed to be the first subaqueous two-story tube (upper level for vehicles and lower for pedestrians and bicycles).
- Its novel ventilating system is equipped with automatically controlled variable-pitch impeller blades combined with new-type dampers.

A deep-rock tunnel all the way, the subaqueous portion is 2,400 ft long and reaches a depth of 150 ft below mean water level (90 ft of sea water and 60 ft of muck, silt and rock). Land portions are each about 4,500 ft long underlying mountainous land on either side of the strait.

Effective width of roadway will be 24 ft 7½ in.; height will be 14 ft 9½ in. The pedestrian passage will be 12 ft 5⅛ in. wide and 8 ft 3⅛ in. high. Maximum grade is 4% and minimum radius is 1,640 ft. Access roadways will total 26,948 ft.

Although operations throughout most of the length have involved sound rock, decomposed and badly faulted rock areas were encountered in more than twenty sections—one more than 430 ft long—making conventional rock tunneling impossible and rendering methods and techniques extremely hazardous and difficult. In these areas chemical grouting was used.

When the tunnel is completed—excavation is 99% done and 73% of the concrete has been placed—about 550,000 cu yd of rock will have been excavated, 200,000 cu yd of concrete will have been placed and 14,000 tons of steel will have been used. Almost 23,000,000 board feet of lumber for shoring and other purposes have gone into the tube, and 302 tons of dynamite have been used.



Directors of the project: Akira Sumitomo, deputy director; Minoru Uenotsuchi, director and Shiro Ibukiyama, chief of design, confer with tunnel foreman.

• Tunneling procedure—Construction started with the driving of two pilot shafts and a pilot rock tunnel parallel to and east of the route of the main tunnel—subaqueous portion—in 1937 and 1938. From this pilot structure, six transverse construction drifts were drilled westward to the centerline of the main tube location.

From the cross drifts, a pioneer bore was driven under the strait following the upper centerline of the tunnel cross section. The pioneer bore for the subaqueous portion was completed in 1942, and excavation of the Moji (Kyushu) and Shimonoseki (Honshu) shafts in 1944.

Excavation in this undersea part of the tunnel progressed from the completed tunnel-top drift toward the bottom, and it was in the Shimonoseki section that the greatest amount of difficult tunneling was encountered.

In the long land sectors, pioneer drifts were driven in the lower centerline of cross sections, and cutting proceeded upward from the bottom. During the war, work continued and excavation was completed and pioneer bores holed through. The upper arch area was then enlarged and supported by steel and timber supports. A concrete arch lining was placed as excavation proceeded to prevent rockfalls.

Excavated rocks fell through the center updrift and into 1-cu-yd muck cars operating on rails in the pioneer bore. During all operations the pioneer bore acted as drainage conduit and, after holing through, provided necessary ventilation.

After the roof was lined, the remaining rock in the benches was excavated and concrete placed in sections from the edge of the arch roof to the bottom of the tunnel. Finally, the invert was excavated and lined.

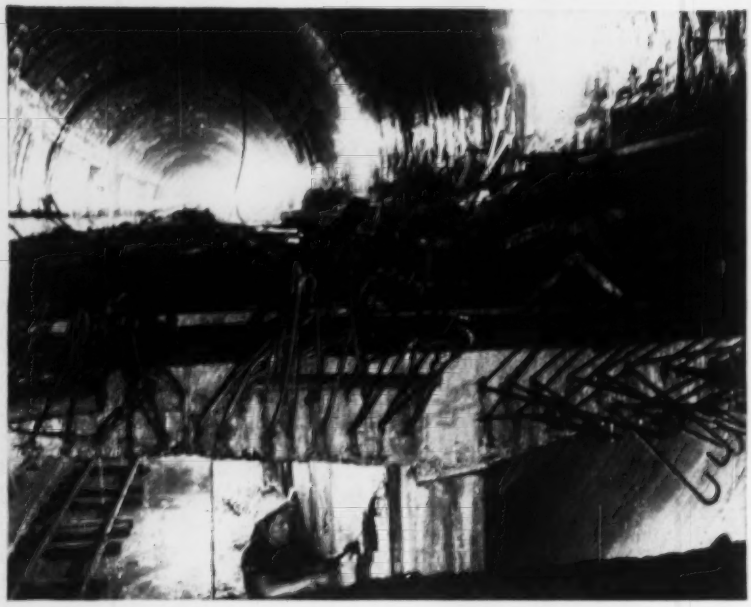
It was at this time that work was discontinued for the remainder of the war. Shortly after end of hostilities, work was resumed in secret with limited funds approved by the Allied Command for maintenance purposes. Full-scale operation began again in 1952 when construction was about 30% completed.

• Drilling and mucking—Various methods of drilling and mucking have been employed, dictated by the condition of rock encountered. All drilling has been accomplished with Japanese-made air-operated drifters, sinkers, stoppers and wagon drills. From 0.73 to 2.2 lb of dynamite was used per cu ft of rock broken.

Mucking was done by air-operated loaders that dumped into 1-cu-yd cars pulled by 4-ton battery locomotives. At entrance sections, however, power shovels and diesel trucks were used.

Full-face drilling was attempted for 241 ft of the Moji undersea section, but due to poor rock conditions and a blasting accident that killed five men, the method was abandoned.

Extremely bad fault zones in areas where decomposed rock was encountered led to development of a chem-



Two-story construction provides vehicular roadway above and pedestrian and bicycle passage below. At lower right is one of two ventilator ducts.

ical grouting technique claimed to be superior to any now in use. Using three chemical compounds—unidentified at present—mixed in grout with ⅛-in. to ¼-in. pea gravel, the material was placed with a 2-in-dia pipe inserted in the lining. Water leakage in a badly faulted 450-ft-long section was reduced by the method to less than 0.5% of original infiltration. Water still flowing from the primary lining is drained through 1-in. pipes into a drainage trench below the center of the invert.

Water handling has been the most difficult of all factors. Leakage has made drilling and blasting extremely hazardous because of softened rock which caused slides. Water also intruded into fresh concrete at times, and in critical sections has built up hydrostatic pressure against the lining. In the bad (Shimonoseki) fault zone, a temporary lining had to be placed along with concrete bulkheads in arch sections at both ends of the zone. Cement grouting here was accomplished through holes drilled at 16-ft intervals, extending from 16 to 82 ft in depth.

When grouting was completed, the temporary concrete bulkheads were removed and excavation advanced under timber shoring and steel supports. An average advance of 6.5 ft was possible before new temporary bulkheads had to be built and the grouting repeated in the forward section.

Immediately following this operation, the primary concrete lining was placed. The procedure (including drilling) limited daily advance to a mere 1.5 ft, resulting in expenditure of more than a year and about 5,000 bags of cement to get through the bad areas. The upper arch section was completed in March, 1954.

• **Roof shield**—Rock falls in pilot drifts made operations in entrance portions of the Shimonoseki land section difficult, so a roof-shield method was used in an 882-ft length of the tunnel. Parts of side walls were concreted to provide benches, and a 60-ton steel roof form, 15 ft 4 in. in length, was rolled ahead, pushed by twelve 100-ton hydraulic jacks.

Each stroke forced the structure ahead 2 ft 7 in. Mucking was by a ¾-cu-yd shovel and diesel trucks, with an average daily advance of 2.6 ft, including concrete placement.

• **Lining**—Excavated rock of good quality was crushed and screened in three crushing plants and mixing was done by eight batchers. Early-strength portland cement was used only for the primary lining of the undersea portion and the Mukuno shaft and Shimonoseki entrance sections. In all other parts of the project, ordinary portland cement was used.

Only one lining was placed in the land portions of the tunnel, varying from 2 ft to 2 ft 4 in. in thickness. In the subaqueous part, however, two linings were placed to minimize danger of rock slides and to control leakage of water through fissures and faults.

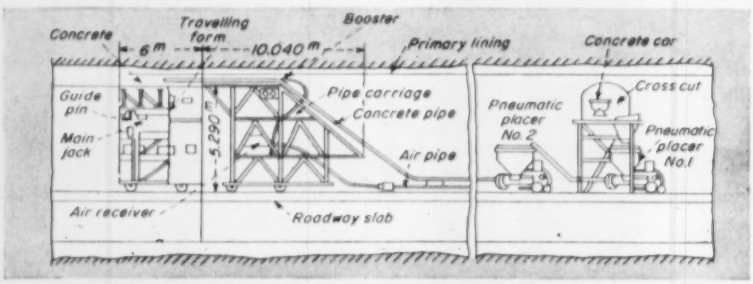
Thickness of the primary lining in these areas ranged from 1 ft 4 in. under normal conditions to 2 ft in poor rock areas. Concrete was placed by hand because working space was limited and the volume of concrete to be placed was too small to warrant use of machines. Placement of the secondary lining, however, has been done by machine. Its thickness: 1 ft 4 in.

Batching and mixing plants are located in land areas, and mixed concrete is transported in cars, descending 200 ft via pilot shaft elevators.

Pneumatic placement is accomplished through use of two machines, one stationary and one traveling, working in tandem. By using a traveling placer, the distance between traveling steel forms, rolling on 60-lb steel rails, and the movable placer, remains constant. With each 19-ft-8-in. advance, only the pipe between the two placers is lengthened. Maximum distance pumped is held to 595 ft, and maximum volume poured in an 8-hr shift has been 97.5 cu yd.

In the Shimonoseki land section, a mixer, placer and discharge pipes are combined as a unit on a carriage traveling on rails. The traveling steel form is also a link in the train. In the Moji land and Shimonoseki entrance parts, concrete has been placed from suspended platforms through a chute.

• **Prestressed concrete ceiling**—Concrete ceiling slabs were installed to separate the exhaust air ducts from the roadway. They are precast, prestressed concrete units (12 ft 4 in. x 1 ft 8 in. x 2⅜ in.) secured by angles projected from the crown center by stainless steel bars. Not only did use



CONSTRUCTION TRAIN, a rolling form leading a pneumatic placement rig, moves 19 ft, 8 in. per cycle. Attached is a fixed rig that moves only from cross drift to cross drift. Only the 6-in.-dia pipe is lengthened each cycle.

Satisfied customer Art Martinson (right), president of Denver's Kitimat Corporation, and Phil Smith, Mack salesman. There's real friendship between these two—and no wonder! Mack diesels are giving Kitimat . . .

100% more fuel mileage

The Martinson Construction Company of Denver, Colorado, leases a fleet of trucks from the Kitimat Corporation. Originally, the trucks were gasoline-powered units averaging 3½ to 4 miles per gallon—real "profit killers." Today, Kitimat operates Mack diesels exclusively and averages 8 miles per gallon—for a saving in fuel costs of more than 100%.

As Kitimat president Art Martinson says, "In 1952 we bought our first Mack diesel and got a real lesson in truck economy and performance. Today, we are 100% Mack—12 mixers, 6 dumpers, and 2 tractors. The fuel savings alone more than justify the higher initial cost of the Macks. Just as important, our Macks give us dependable service, bonus capacities, and lower maintenance costs with a really gratifying minimum of down time."

Why not cut hauling costs and boost your profits with Macks—trucks that are unmatched for operating economy, stamina, and low maintenance? Like other operators, you'll find that you can't afford *not* to operate Macks. For complete information, contact your local Mack Branch or Distributor. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

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SUITS-- Style 80 Jacket with Style 81 Overalls makes the ideal shaft suit. Other jacket-and-overall suit combinations to meet every preference or job requirement.

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"Hardboiled" Safety Hats in fibreglass or aluminum. Light weight and comfortable, yet providing greatest possible head protection. Exceed highest established requirements for strength, heat and moisture resistance, and dielectric tests.

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of these units save time and work; they also permitted slabs to be 3 to 4 in. thinner, thus increasing exhaust air duct area by some eight percent. This will have a marked affect upon electric power needed for operation of ventilating fans.

Use of variable pitch fan impeller blades will automatically change air volume and static pressure to meet changes in volume of traffic. The new fans will maintain almost constant efficiency for various loads. Maximum efficiency is estimated at 86%, with efficiency levels maintained above 60% through wide ranges from 42,400 to 191,000 cfm. Thus a 20% savings in power expenditures over other systems has been anticipated.

• **Drainage**—Four permanent pumping stations with a total of eight pumps will serve the tunnel. Three stations will be located in the undersea portion of the tunnel, and one in the land part. The central station will be at the deepest point, equipped with two 20-hp pumps.

Water will be delivered through a drain pit cut in the floor of the pilot tunnel base to stations at either end. From these it will be pumped through pilot shafts by two 100-hp turbine pumps installed in each.

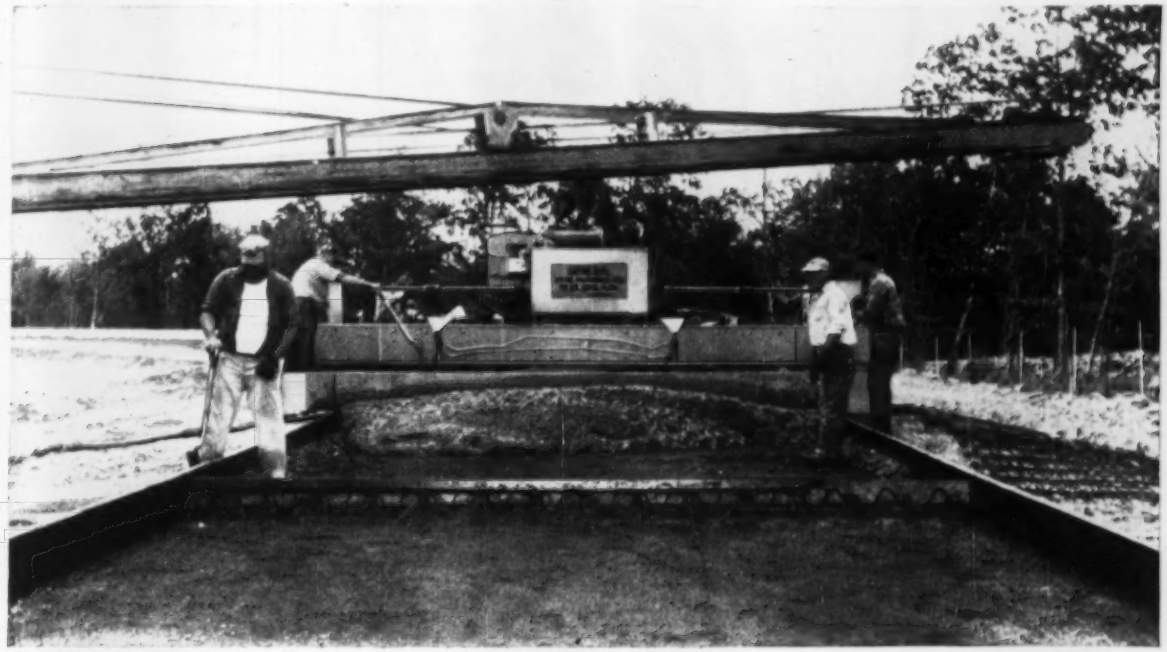
Two 40-hp pumps have been installed in a sump station at the Shimonoseki entrance. A series of bank walls will be constructed and a steel door soon will be set up to hold back flood waters in the event of typhoons. No such precaution will be necessary at the Moji entrance.

Two small, automatically operated pumps will be installed at the bottom of each of three ventilating shafts, making a total of 604 hp of pumping capacity available when needed.

Until 1952, the Japanese government directed all construction work, hiring employees directly, but when post-war work on the tunnel was resumed on a large scale, the government let most of the work in land sectors to private contractors. It has maintained direction only in the undersea area and in one-third of the Shimonoseki land sector where contractors have refused to take risks involved in these more dangerous zones.

About 1,200 workers are employed on the project—650 by contractors and 550 by the government—with government employees enjoying better working conditions than do contractor workers. They earn $1.40 per 8-hr day under a 3-shift system, while contractor workers receive $2.20 for a 12-hr day under two shifts. In total, it is said that more than 2,500,000 workers have been employed since work resumed in 1952.

paving contractors are switching to General . . .



General Model 5-S portable self-widening 12-18 ft. Finisher working on northeast extension of Pennsylvania Turnpike.

GENERAL SELF-WIDENING FINISHER

cuts interchange paving costs for J. Robert Bazley, Inc.

Another leading contractor now using General Road Machines paving equipment is J. Robert Bazley, Inc., Pottsville, Penna.

They are using a GRM Model 5-S 12 to 18 ft. self-widening Finisher on the northeast extension of the Pennsylvania Turnpike.

Working on an interchange ramp with a dual-drum paver, the General Finisher recently handled 401 batches in 6½ hours. The ramp, of 1 in. slump wire-reinforced concrete, tapered from 17 to 12 ft. in width. Super-elevation was 1 in. per ft.

On this difficult pour, the GRM Finisher struck off for mesh and made first and final finishing passes while adjusting in width from 17 down to 12 ft. and negotiating the super-elevation. Completing this job in just 6½ hours, the General machine operated at near the full capacity of the paver. Because of its cost-cutting speed, the contractor is now using this Finisher in place of another machine on straight-away paving on the Turnpike extension.

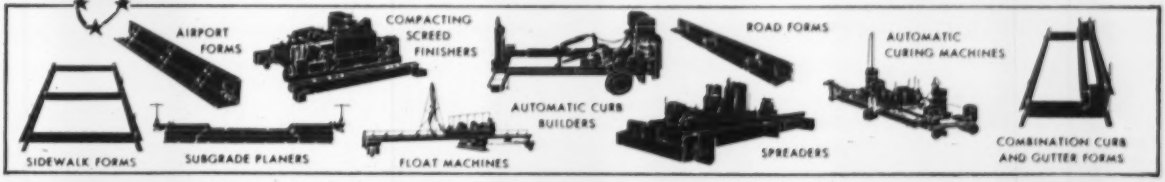
General machines can increase production and cut costs on your jobs. Ask your General Road Machines distributor for more information about this advanced design Finisher, available in widths up to 32 ft. It's a part of General's complete line of modern paving equipment. AA-3906

GRM

GENERAL ROAD MACHINES, INC.

GENERAL FIVE STAR EQUIPMENT

Niles, Ohio



BIGGER ROADBUILDING

Michigan Gravel Hauler Elmer Burger Hauls A Full Truck And Trailer Load In One Fruehauf-Schonrock Cable Dump!

40,000 POUNDS OF GRAVEL is a normal load for a combination hoist-type dump truck *and* full Trailer. But, with only one tractor and a Fruehauf-Schonrock Cable Dump Trailer, Elmer Burger, an owner-driver hauling for Walter Morrell of Redford, Michigan, hauls a full 40,000 pounds per trip.

YOU SAVE BIG MONEY in equipment outlays when you move as much sand and gravel with a two-unit rig as you would with a three-unit combination. Not only is your investment lower, but you'll have fewer upkeep and operating expenses due to the simplicity of the Fruehauf-Schonrock Cable Dumping Mechanism, which has only five moving parts.

AND YOU'LL FIND that the new Fruehauf-Schonrock Cable Dump Trailer . . . can dump with the tractor turned at right angles to the Trailer . . . can winch itself or the tractor out of holes . . . has all wheels safely on the ground while dumping . . . takes advantage of all Bridge Formula Laws.

INVESTIGATE the Trailer that does the construction hauling job of two straight dump trucks or a dump truck and Trailer combination — *for your own greater profits!*

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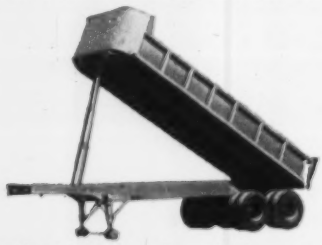
PROFIT-DESIGNED FRUEHAUF DUMP TRAILERS FIT EVERY CONSTRUCTION NEED . . . AND CAN ALWAYS BE

Lightweight, frameless Hopper-Type Dump Trailers are equipped with either windrow or cross-hopper dump gates. Unit shown has 10 yard capacity.



Fruehauf Hoist-Type Dump Trailers are designed for maximum bridge formula payload capacity and available in many capacities.

Twin-screw Bulk Cement Transport is quickly loaded through 24" manholes . . . discharges 125 barrels in approximately 12½ minutes.

PROFITS

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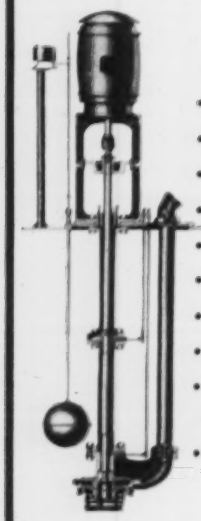

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2. **Size of the pump shafting.** Yeomans shafts have minimum diameters of 1-7/16".
3. **Distance between intermediate guide bearings.** Maximum space between guide bearing on Yeomans pumps is 5 feet.
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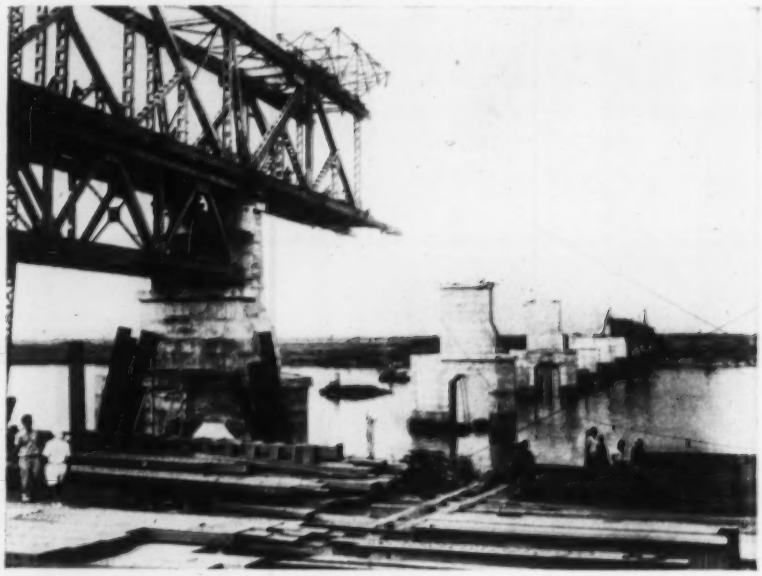


Crossing the Luluaba at Zofu

Long a problem to efficient heavy transport in the Belgian Congo have been the many wide, shallow rivers, with crossings served by slow, small ferries. One such ferry will soon make its last crossing, when this new steel truss railroad structure is completed across the Luluaba River, near the town of Zofu. It will be the last link in a road-rail connection between Tanganyika (British territory) and the Congo's Atlantic coastline.

The bridge will be the longest in the Congo, clear mean water by 40-ft to allow local navigation to pass.

Ecuador Port Plans Changed On Advice From U. S. Engineers

Because of a study recently completed by a team of U. S. Army engineers, the government of Ecuador has abandoned plans for development of the port of Guayaquil, and has decided to construct a new port on a nearby estuary.

The study resulted from an application filed by Ecuador with the International Bank for Development and Reconstruction, for a $10-million loan for new facilities at Guayaquil.

Before approving the loan, the bank requested a review of engineering and economic features of the project.

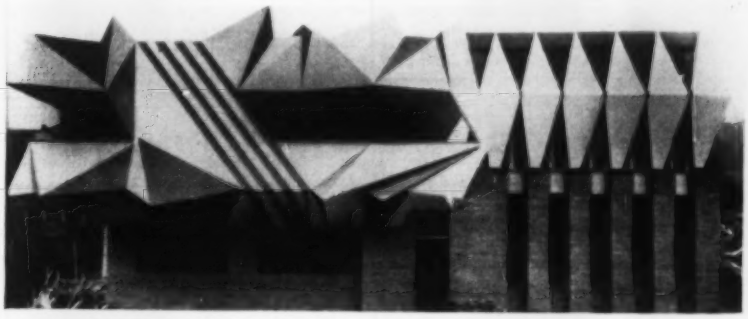
The investigations were limited to the tidal hydraulic features of the project, but included a review of all prior surveys and reports, as well as an on-the-spot study of the project site. It was discovered that improvement of existing facilities at Guayaquil would have required annual dredging of the Guayas, a river which has flood discharges of 500,000 cfs and which carries large amounts of suspended sediment and floating debris. The recommended alternate calls for construction of a new port on nearby Estero Salado, an estuary which parallels the Guayas and has very little fresh water inflow.

The engineer team comprised C. F. Wicker, Chief, Engineering Division, Phila. District; E. A. Schultz, Hydraulic Engineer, Charleston District; J. H. Douma, Hydraulic Engineer, Office of the Chief Engineer, Washington, D. C.; R. O. Eaton, Chief Assistant, Beach Erosion Board.

French "Sea-Power" Plant Could Produce Food, Too

For power, for fresh water—and now for food—the French are leading the way in exploring the vast, virtually untapped wealth of the seas. With the world's first tidal power plant already begun (ENR Jun 14, p. 36), they now plan to harness thermal-differential power and turn it into electricity. Potable water will be a by-product and food is a possibility.

The variation of temperature with

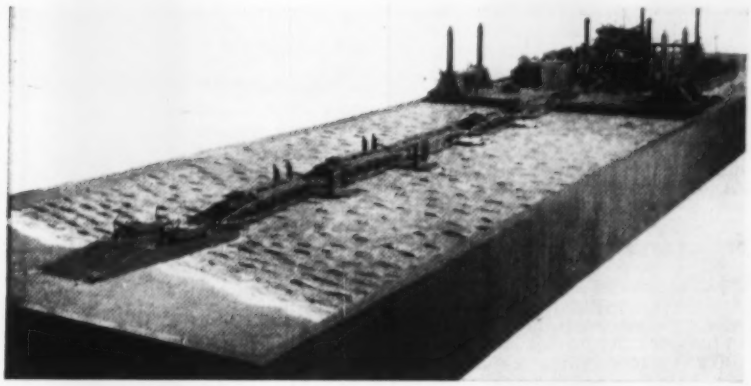


Building Facade Shows Man's Progress

Located in a hilly part of Turin, Italy, this unique building is the home of Italian sculptor Mastrojanni. According to the architect, Enzo Venturelli, the structure is symbolic of man's progress. Man's path to perfection from the scrambled origin of matter is supposedly indicated in proceeding from the chaotic shape arrangement on the left to the orderly row of double pyramids to the right. Venturelli has achieved the effect by plastering concrete on wire netting supported by metal frames. The concrete is then waterproofed after which it is colored.

ocean depth has long been looked upon as a practically limitless source of power. Experiments have been conducted for years (ENR Mar. 12, 1953, p. 38). Last December, and again in April, conclusive tests took place in Abidjan, French West Africa, where the world's first temperative-differential power plant may be built. Tests were to determine means of laying pipelines to great depths.

Results of those final tests surpassed



Models Perpetuate Normandy Invasion Harbors

Five models, of which this is one, showing the elements and details of the famous floating landing piers of the artificial harbors used in the Normandy invasion of Europe, were put on display in June in a new memorial museum at Arromanches, France, scene of the operations twelve years ago. It will be recalled that two of these landing pier assemblies were towed over from Britain, where they had been fabricated, one for the American forces and one for the British. The American pier was virtually wrecked by heavy gales before it could be effectively used, but the other one played a decisive role in getting supplies ashore in the British sector. According to Engineering (London), the models, which occupy an area 10 x 75 ft, were made by Basset-Lowke, Ltd., Northampton, and a considerable part of their cost was borne by the British Constructional Steel Association and the Federation of Civil Engineering Contractors.

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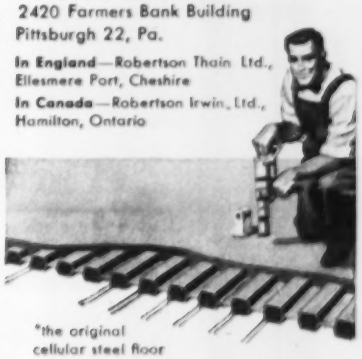

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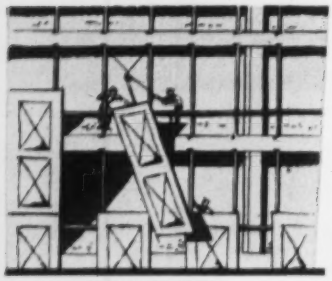

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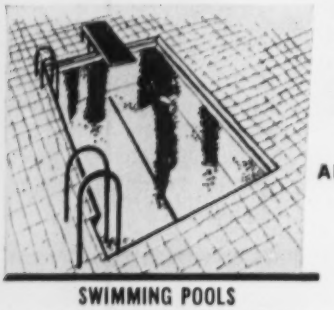

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all expectations, showing that the project was economically feasible even if the only product obtained is electricity. But large quantities of fresh water would also be produced. And what's more, the possibility of ample sea food supplies does not seem too remote. Supposing that every thousand gallons of sea water absorbed contains about 7 oz plankton—which is a conservative estimate—the Abidjan plant would produce annually 50,000 tons of valuable food by processing the water.

Brazil has already contacted French engineers asking them to study the possibility of a similar plant supplying fresh water for Rio de Janeiro, a thirsty capital in sore need of new water sources.

Iran Gets $5 million For Road Maintenance Plan

A credit of $5 million to the Imperial Government of Iran to assist in establishing a highway maintenance program has been announced by the Export-Import Bank.

The money is the second loan granted to Iran under an overall $53-million line of credit established in mid-1955. The funds will be spent in the United States, with more than $4.4 million going for maintenance, and $500,000 for payment of technical personnel. Eleven U. S. technicians will serve as an advisory and training team and as consultants on highway matters.

A central repair shop and training center will be established in Teheran for initial training of mechanics and operators to staff ten highway division headquarters throughout the country.

Yangtze Bridge Will Link Wuchang and Hanyang

Completion next year of the 5,000-ft Yangtze River Great Bridge, started in 1955, will establish direct rail service for the first time between Peiping, the capital of Red China, and Canton, a port city on the South China Sea. Located about 600 miles from the mouth of the Yangtze, the bridge will link the cities of Wuchang and Hanyang. A rail connection being built at the same time from Wuchang to Hankow will close the final gap in the 2,500-mi line.

Structurally, the bridge will be a series of steel-truss spans, supported by piers on reinforced-concrete-pipe piles. Piles are being driven in 11-ton sections 30 ft long and 5 ft in dia. Two decks will be built, the lower one with

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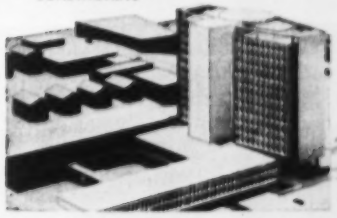

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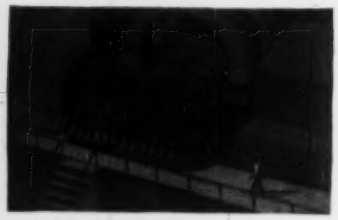

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a double-track railroad, the upper one for 6-lane vehicular and pedestrian traffic. The top of the bridge will clear the river bed by about 175 ft.

Substructure work is expected to be finished this year. Rail traffic is scheduled to begin in October of next year, with motor and pedestrian traffic starting a short time later.

Claimed by the Chinese to be the biggest steel bridge in the Far East, the bridge is probably being built with Chinese steel. Hanyang, one of the terminal cities of the bridge, produces steel from ores mined at the nearby Tayeh Iron Mines.

Gold Coast Hydro-Aluminum Project Is Termed Feasible

A giant $647-million power and aluminum development on the Volta River in Africa's Gold Coast has been held feasible by a government sponsored commission.

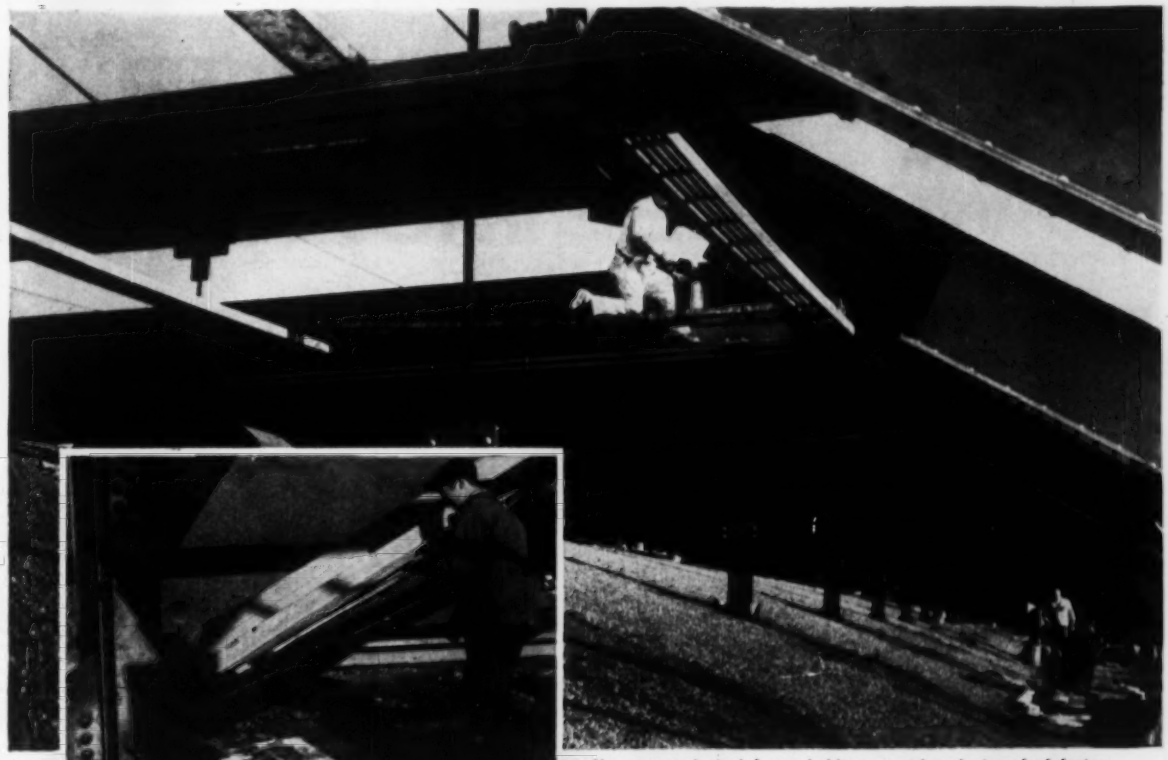
Tentative partners in the scheme are the governments of the Gold Coast (a British colony expected to achieve full independence next year), Great Britain, the British Aluminum Co. and Aluminum Ltd. of Canada. The next step is for the two governments and the aluminum companies to agree on a framework for financial support and then invite the World Bank to participate.

The project would include a dam and powerhouse at Ajena, 50 miles from the mouth of the Volta, a smelter at nearby Kpong with an ultimate capacity of 210,000 tons of aluminum a year, a railroad from the smelter to Tema and port facilities at Tema. Somewhat in excess of 500,000 kw would be installed in the powerhouse, and power could be supplied at about 2 mills per kwh.

The initial stage of the project, estimated to cost $445 million, could be completed in seven years. This would provide 80,000 tons of aluminum annually.

Persian Gulf "Texas Tower"

British Petroleum, London, has placed with a German firm, a $1.9-million order for construction of a platform to be used in underwater oil drilling operations in the Persian Gulf. The artificial island will be 196 ft long, 98 ft wide, 16 ft deep, and is said to be the first of its kind built in Germany. Scheduled for a May 1957 completion, the platform will be tested in the Lake of Audorf near the North Sea-Baltic Sea canal, before being towed to its working location in the Persian Gulf.



New exposed steel frame holds up wood arched roof of factory building acquired by Republic Aviation Corp. on Long Island, N.Y. Erector: White Plains Iron Works, Peekskill, N.Y.

Worker checks torque on RB&W high strength bolts securing the frame.

BOLTING CUTS COSTS of steelwork

Economy of using RB&W High Strength Bolts proved again on unusual roof suspension job

HOW TO GET 11 feet more headroom in an existing factory building without tearing down and rebuilding the wood roof? *Suspend* the old roof from a new, external steel frame and remove the wood chord ties. How to keep costs down? Go to *bolted* construction with RB&W High Tensile Bolts.

That sums up a job done for Republic Aviation by White Plains Iron Works. From the rigid frame, steel rods connect through roof to horizontal steel channel beams which support the wood beams.

Faster than riveting, bolting shortened erection schedule. It used two-man crews, less equipment. All things considered, erected cost of steelwork when bolted is less than when riveted. Savings on this job were estimated at $7 per ton of erected steel.

Stronger than rivets, RB&W high tensile bolts develop optimum joint strength . . . in shear and tension . . . under dynamic as well as static loads in buildings, bridges or equipment. They stay *permanently* tight.

RB&W supplies bolts noted for uniform quality, ease of assembly, and complete reliability in any type of joint. Bulletin HS-1 gives working information. Send for as many copies as you need.

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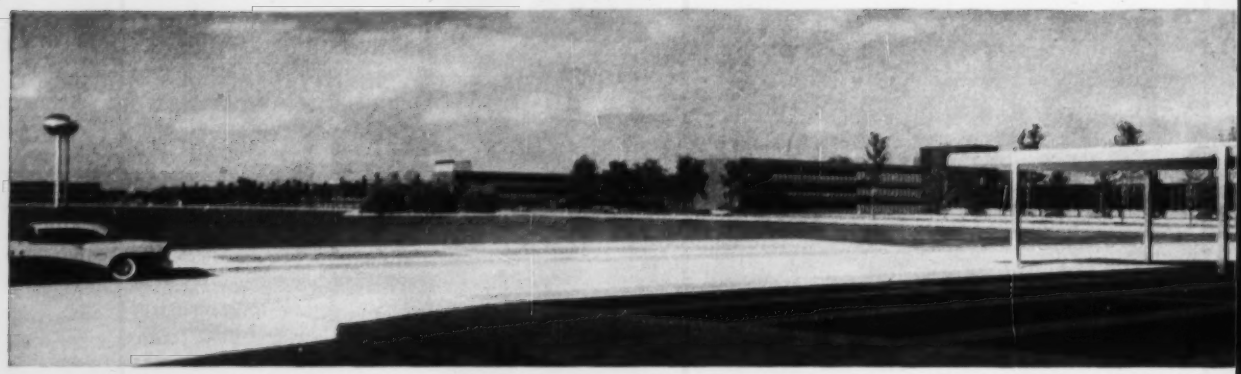
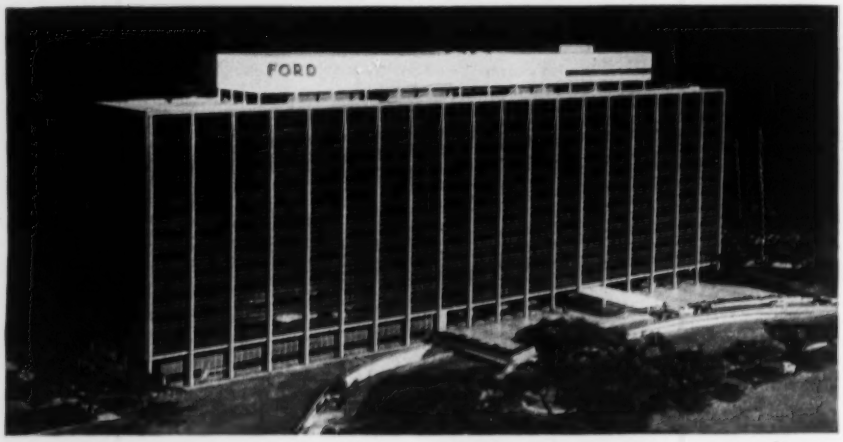


General Motors Technical Center, shown above, is an example of large construction jobs handled by this leading midwest contractor. American Mutual safety know-how helped keep accidents down . . . profits up.



New Ford Central Staff Building nearing completion by Bryant & Detwiler Co. Other construction jobs for Ford Motor Company include the Willow Run Bomber Plant, the Lincoln-Mercury Plant, Wayne, Michigan, and many other large projects.

Five-Year Award from Associated General Contractors for best safety record during five years ending 1954 among AGC (Group A Building) contractors being presented to Mr. C. R. Slimmon, right, of Bryant & Detwiler Company.

City-County Building, Detroit, Michigan, is shown under construction at right. American Mutual accident-prevention techniques help protect employees and the public . . . assure continuous operations and completion of schedules on time.

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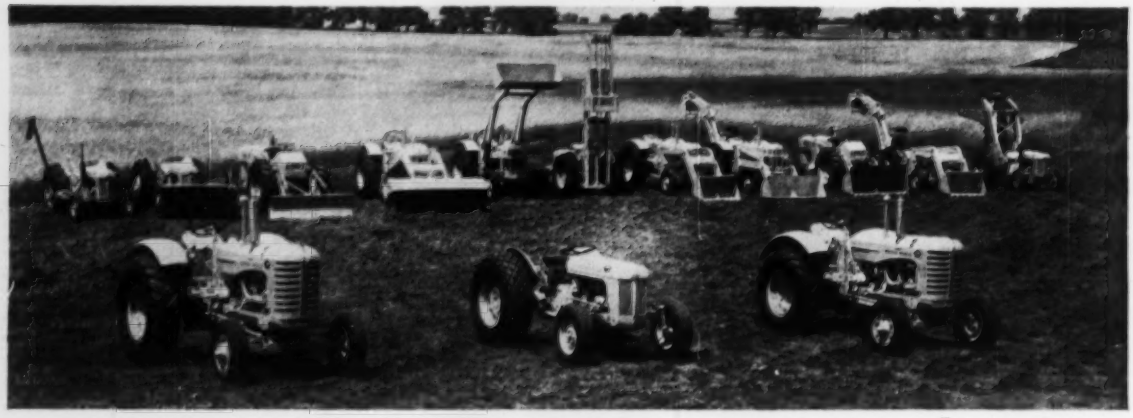


M-H-F Moves Into Earthmoving Equipment

At its Product Education Center near Racine, Wisc., Massey-Harris-Ferguson, Inc., recently showed by demonstration and formal announcement that it is moving into large-scale manufacturing of small-to-medium size earthmoving equipment.

The new line of pneumatic tired, wheel tractors, together with their several integrated attachments will perform a variety of construction operations, including materials handling. In addition to the construction industry itself, the manufacturer anticipates a high potential demand for this equipment by municipalities as well as county, state and federal agencies and utility companies.

Basically, M-H-F's new industrial division, established to produce and market this new line of equipment, will produce four light- and medium-duty tractors, together with a long list of attachments. These include backhoes, ditchers and front-end loaders as well as bulldozer blades, scarifiers, street sweepers, lift forks and mowers.

• **Development**—This line of equipment has been in design and testing stages for about two years. For a great number of years M-H-F has been a major producer of farm equipment. But, since more and more of its tractors were being purchased for use in the construction industry, the company began to look to expanding its manufacturing operations in that direction. This move was of course backed up by surveys and analyses, of the potential demand.

In developing the machinery, M-H-F concentrated on a complete power package incorporated in a full line of wheel tractors ranging in size and power from 34 hp to 52 hp. According to the manufacturer, the tractors and their integrated attachments have been designed to fill the gap between light and heavy equipment in three areas: as primary equipment on small, work-and-run jobs; as back-up machines for medium and high-priced, single-purpose equipment; and as versatile clean-up and utility tools.

• **Sizes and power**—The smallest of the tractors, Model 202, is powered by a 134 cu. in., 34 hp engine and mounts any of 20 attachments, including front-end loaders, backhoes, mowers and sweepers. It has a top road speed of 15 mph and has six speeds forward and two reverse.

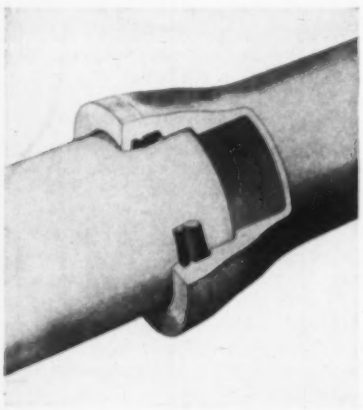
Next in size is Model 303, whose 208 cu. in. engine packs 42 hp, and has an in-line transmission with five speeds forward and reverse. It also has a top road speed of 15 mph. A ⅜ cu. yd. bucket is available to make this unit a front-end loader; it also mounts backhoes with bucket sizes ranging from 12 to 36 inches. Other important features are: heavy duty front end axles and supports; worm and sector steering which eliminates whip or snap-back action when working over bumps or ruts; gas-driven differential that conserves power and increases lugging characteristics; heavy-duty clutch; and full-pressure lubrication. A diesel engine and constant power steering are offered as optional extras.

The biggest tractor in the line, Model 404, is adaptable to heavier-duty jobs. (M-H-F has named these three sizes of tractors "Work Bulls.")

Joint for Cast-Iron Pipe Installs Easily

After extensive laboratory and field tests, a new joint for cast-iron pipe is now on the market. Highlight of the "Tyton" joint is its simplicity—only accessory is a circular rubber gasket.

The inside contour of the pipe's bell provides a seat for the gasket, which has a modified bulb cross section, shaped to fit an internal bead in the bell. The gasket is placed in the bell, and its inside surface given a slight coating of lubricant. Then the slightly tapered plain end of the joining pipe is seated by forcing it into the bell thus compressing the gasket and forming a tight seal. U. S. Pipe and Foundry Co., 3300 First Ave. N., Birmingham 2, Ala.

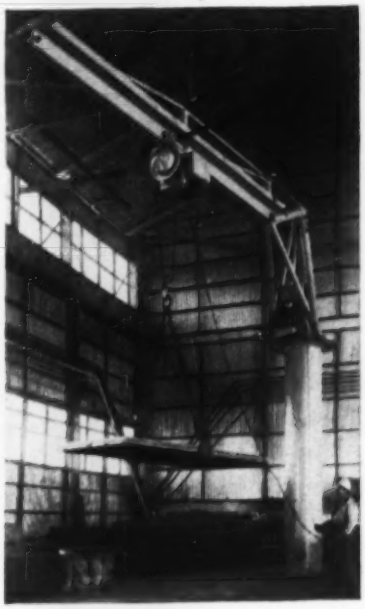


Model 404 has a 52 hp, 277 cu. in., high-torque engine. In addition to hydraulic control of both tractor and attachments, this model features a five-speed transmission, gear-driven differential, heavy-duty front axle and support, worm and sector steering (power steering optional), heavy-duty clutch, full-pressure lubrication and a 12-v electrical system. Diesel engine and power take-off are available as optional equipment, and the transmission offers five speeds forward and reverse.

The fourth tractor unit, called a "Davis Pit Bull," has a 42 hp gasoline engine. A torque converter, power clutch and optional power steering highlight this model, which also mounts a wide variety of auxiliary attachments. One of its unique features is a set of reversing clutches which permit direction changes without shifting.

Engines for models 303 and 404, and the Pit Bull line feature high-velocity, rotory-turbulence Cyclo-Head combustion, long-stroke pistons, and long-throat manifolds. In addition they have precision carburetion for complete fuel vaporization. Exhaust valves rotate, while replaceable wet sleeves reduce service and repair costs and improve engine performance, according to information from the manufacturer.

Attachments for the Pit Bull tractor include a $\frac{3}{8}$ cu yd material bucket; hydraulically driven and angled dozer blade 8 ft long; hydraulically driven and angled 96-in. street cleaning broom; 12 in. to 36 in. backhoe; 2,000 lb capacity fork lift; a 72-in. scarifier attachment for the loader; and a hydraulically controlled utility crane. MASSEY-HARRIS-FERGUSON, INC., RACINE, WIS.



15 Tons On the Spot

Designed for smooth handling and exact spotting of loads, LeTourneau's new power-rotated jib crane is said to offer precision control. The rotating mechanism is electrically powered. Electric braking provides absolute control of both boom and load, according to the manufacturer. Electric drives for hoist and trolley are also available.

Built with 6, $7\frac{1}{2}$, 10 or 15-ton capacity, the crane serves a 1,965-sq-ft area through full-circle rotation of a 25-ft boom. Push-button controls for both jib crane and hoist, suspended together, permit handling by a single operator. All-weather design fits the cranes for either indoor or outdoor work. R. G. LeTourneau, Inc., 2399 S. MacArthur, Longview, Tex.

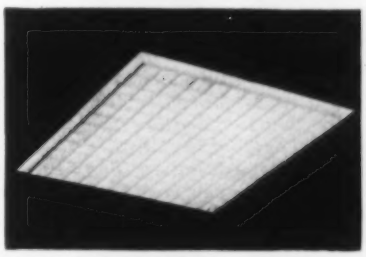
Low-Cost Louver-Diffuser Offers Easy Maintenance

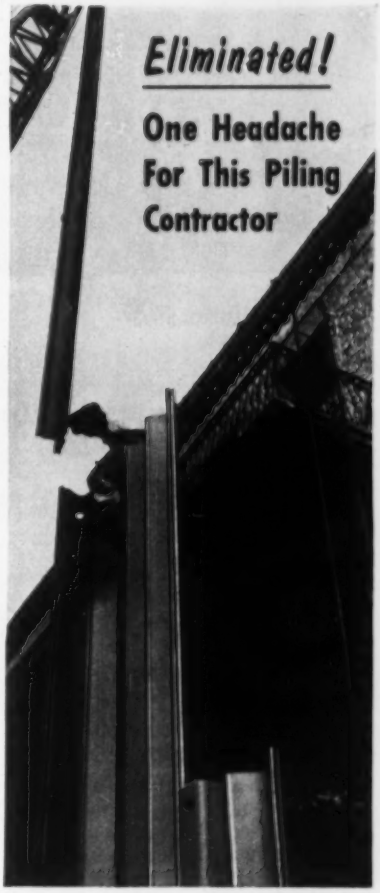
A cellular plastic bottom piece and a flat diffusing top sheet have been combined by electronic fusing to provide a new enclosure for lighting fixtures. Easy maintenance, low cost, and a minimum of direct and reflected glare are some of the advantages cited. The enclosure is cleaned by lifting it from the fixture and submerging in a mild detergent solution.

Tradenamed CurtiCell, panels are lightweight—4 oz psf—and are especially recommended where lighting must be soft and glare-free. They are available in both 2 x 2-ft and 2 x 4-ft sizes.

The cellular portion of the panel may be either translucent white or clear plastic with a frosted finish. The cells are $1\frac{1}{4}$ in. square and $\frac{7}{8}$ in. deep.

According to the manufacturer, the vinyl chloride material of which the





Driving steel-sheet piling through silty material softened by heavy rains—he had to work in a narrow, twisting, busy street with no space for job-site storage, and as always, a heavy cost penalty for time lost. By renting his piling from L. B. Foster Co., he got deliveries *as needed*—delivered by Foster trucks over planned routes. All the headaches that could have been the contractor's were eliminated by using Foster's Piling Rental Plan.

Foster Piling Rental Plans are complete—for all types of steel-sheet piling (and lightweight piling). You get the right type, the exact section, the exact length . . . when you need it . . . and at low fixed cost. Ask your nearest Foster office for details and prices—see for yourself the savings in Foster's Piling Rental Plan.

STEEL-SHEET PILING • PIPE-FOR-PILING
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RAILS • TRACK EQUIPMENT
PIPE • PIPE FABRICATION

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No matter what the pipe in your water distribution system

-there's an Eddy valve or hydrant to fit!

EDDY Bronze-Mounted GATE VALVES
offer simplicity of design, trouble-free operation and enduring service. From the engineering drawing boards through all stages of manufacture, they are step by step a truly "finished" product of workmanship. These factors, added to personal experience, are reasons why progressive water works men have relied on Eddy Valves for years. Available with bell, mechanical joint or flanged connections.

EDDY Bronze-Mounted HYDRANTS
are built for dependability and lasting service. They open smoothly *with* the pressure and close against the pressure without water hammer. One man can easily remove all operating mechanism for inspection and repair. Positive drip action automatically drains the standpipe, safeguarding against freeze-ups. Stem held in place below main valve means no water loss due to a bent stem. Equipped with bell, mechanical joint or flanged connections.

★ ★ ★ ★ ★

Mechanical joint connections for valves or hydrants are made with standardized mechanical joint ends for use with mechanical joint pipe or with Class D mechanical joint ends to fit all classes of pipe.

Send today for full information on the complete line of Eddy Valves and Hydrants. No obligation.

EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons
WATERFORD, NEW YORK

sections are made is shatterproof under normal conditions as well as self-extinguishing. List price of panels is less than $1.00 psf. CURTIS LIGHTING, INC., 6135 W. 65TH ST., CHICAGO 38.

New Soil Compaction Tester Speeds Field Density Checks

A new instrument for determining in-place density of soils for research and construction control is now available. The instrument, called the Volumcasure, is self-contained and weighs 13 lb.

Working on the water-filled balloon principle, the device feeds water through a pressure-vacuum bulb system which extends or retracts the balloon in a few seconds. Volume measurements are read directly on a graduated cylinder of 1/20-cu-ft capacity, with an accuracy calibrated to .00025-cu-ft divisions. Price $95.00 Chicago. SOILTEST, INC., 4711 W. NORTH AVE., CHICAGO 39, ILL.

Enameled Glass Developed For Building Curtain Walls

A textured-surface glass, ⅜ in. thick, has been developed primarily for curtain-wall construction in buildings, but is also suitable for storefronts and interior paneling. Ceramic enamel is fused to the back to give the glass color, and aluminum is added to protect the enamel and reflect heat. The glass, known as Huetex, is tempered. BLUE RIDGE GLASS CORP., KINGSPORT, TENN.

Shovel Bucket Knocks Out Wet Clay and Sticky Muck

A number of engineering advancements that the manufacturer says gives the crawler tractor loaders great ability to dig and dump sticky materials have been announced by American Tractor Corp.

Outstanding new feature, the manufacturer says, is a mechanical "knock-out" action which jars wet clay and muck out of the bucket instantly at all dumping heights from 2 ft to full lift height. Extra large tilting cylinders and revamping of the dumping mechanism so that tilt arms strike ends of lift arms as the bucket swings into fully dumped position achieve the "forced ejection" method.

Another new feature is an increase in bucket dumping angle; at low dump heights. AMERICAN TRACTOR CORP., CHURUBUSCO, IND.

High-Strength Steel Cuts Demountable Scaffold Weight

A demountable scaffolding introduced for light duty is made of high-strength high-carbon steel to keep weight down without sacrificing strength. Connections are designed for fast setup and disassembly. The frames can be made up into rolling towers as well as stationary scaffolding. Frames are available 4 ft wide, and either 4 ft or 6½ ft high. Standard bracing lengths are 7 ft and 10 ft. Casters, guard rails and other accessories are also supplied. WACO MFG. CO., MINNEAPOLIS, MINN.

New Portable Tracing Table Has Illuminated Plexiglas Top

A lightweight, extra-thin portable tracing table is now on the market. A mere 1⅞-in. thick, the board has flush top edges and can be used beneath a string straight edge. The drawing surface is plexiglas, designed for maximum diffusion of the fluorescent light with minimum glare. The table, equipped with rubber feet for use on tilted surfaces, is available in 4 sizes, from 11x18 in. to 24x36 in. PORTA-TRACE, INC., 342 CLINTON ST., BINGHAMTON, N. Y.

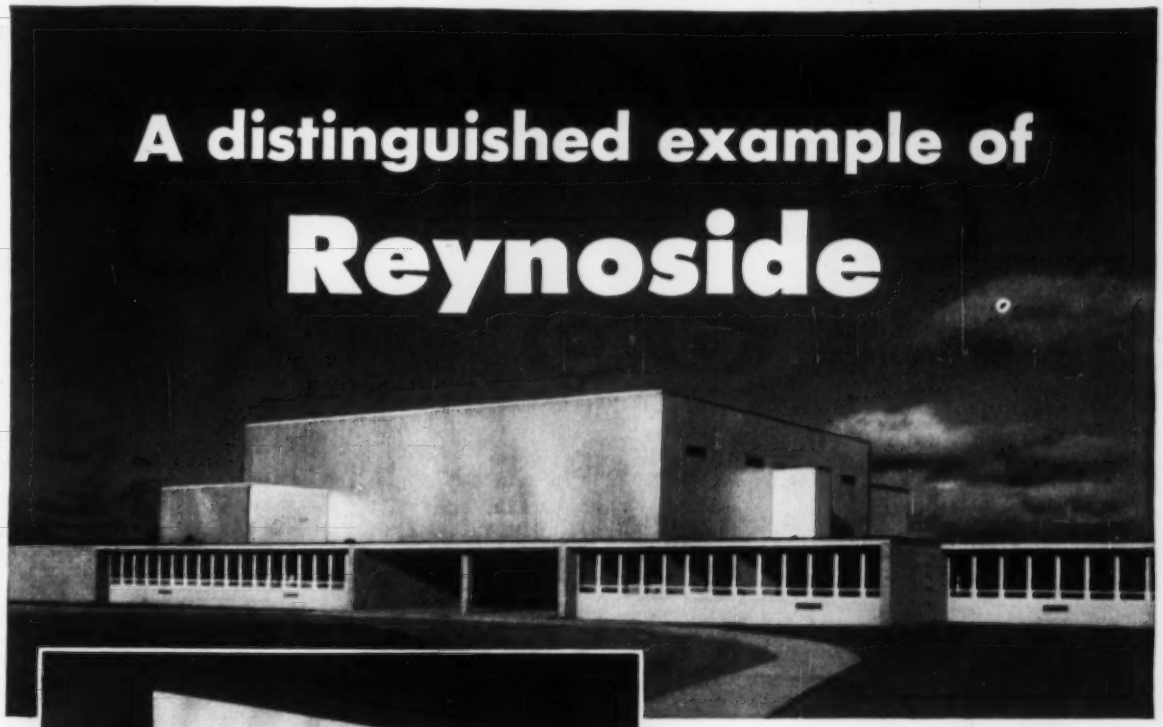
Liquid Bonding Agent Sticks Everything to Anything

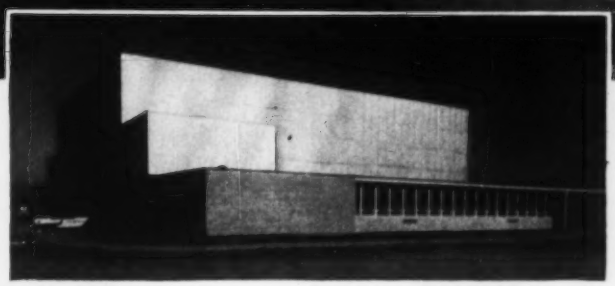
A liquid bonding agent called Thorobond is designed to promote adhesion of new plaster, cement, tile, linoleum and other materials to existing surfaces of concrete, masonry, stone, plaster, wood, glass, tile, wallboard, stucco and oil paints. According to the makers, it is nonflammable, nontoxic, resistant to freezing and thawing, and immune to alkalinity. It remains plastic and won't deteriorate. Brushed or sprayed on, the liquid has a green color that helps the user apply a uniform coat. Available containers are 1 qt, 1 gal, 5 gal and 55 gal. STANDARD DRY WALL PRODUCTS, INC., NEW EAGLE, PA.

Powder-Powered Stud Driver Aimed at Homebuilder Sales

Remington's "Mighty Mite" model 456 powder-actuated stud driver is designed to do for small homebuilders what more elaborate models have done for big contractors. Retailing for $34.75 and weighing 3¾ lb, the tool drives a variety of studs—headed, ex-

A distinguished example of Reynoside





Shawano High School, Shawano, Wisconsin

Architect:
Edgar A. Stubenrauch & Associates, Sheboygan, Wisconsin

General Contractor:
Palisades Construction Company, Appleton, Wisconsin

Jobber-Erectors:
Wisconsin Bridge & Iron Company, Milwaukee, Wisconsin

Material:
Reynoside* 8" Rib (.051" thickness), used with 1½" glass fiber insulation and a back-up sheet of .032" flat-embossed Reynolds Aluminum.

The modern beauty of this school bespeaks a functional modernity in its siding. For insulation, it combines the high radiant heat reflectivity of aluminum, both sides, with 1½" glass fiber insulation in between. Aluminum's freedom from rust and resistance to corrosion reduces upkeep costs over the years. Inside surfaces may be readily washed or wiped clean. Thus low upkeep combines with low applied cost for all-around economy.

A complete installation service is available. For name of nearest jobber-erector, call the Reynolds office listed under "Building Materials" in classified phone books of principal cities. For literature, write to **Reynolds Metals Company,** Building Products Division, 2009 South Ninth Street, Louisville 1, Kentucky.

***Reynoside** standard types are 4" rib, .032" thick; 8" rib, .032" thick; 8" rib, .040" thick. All types stipple-embossed. Available in lengths from 5' to 22'5". Nominal width coverage is 40".

See "FRONTIER", Sundays, NBC-TV Network. Starting Sunday, Sept. 23, see Reynolds great new series "CIRCUS BOY"—same time and station.

REYNOLDS ALUMINUM
BUILDING PRODUCTS

New HOMELITE Pump

Whispers While It Works

Goodby residential complaints! Here's a new lightweight gasoline engine driven pump that takes it easy on the neighbors' ears. Yet handles any water problem . . . from seepage to volumn pumping! The new Homelite Model 36 S2 2" self priming centrifugal Pump operates at slow speed with low noise level yet has high capacity of 9000 gallons per hour. It weighs only 85 pounds and can be easily carried by one man to the best pumping location. Starts quickly, primes automatically, gives long, dependable and trouble-free service under the toughest conditions. Ask your Homelite Representative for a free demonstration. You'll find a good neighbor policy in every pump.

Manufacturers of Homelite Carryable Pumps • Generators Blowers • Chain Saws

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a division of Textron Inc.

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ternally threaded, internally threaded and others—with .22-cal. cartridges that come in several strengths. Operating speed is said to be better than one fastener a minute. A hammer blow on the firing pin detonates the cartridge.

Safety features: The tool must be held vertically against the work surface, then twisted and depressed before it will fire; it has a standard box-type guard at the barrel end. Remington Arms Co., Inc., Bridgeport, Conn.

Clutch and Brake Modernizing Kits for D8's Soon Available

Caterpillar has announced that field change-over kits for equipping Series D & E, D8 tractors with oil bath steering clutches and brakes will soon be available to owners who wish to up-date their machines. The new oil type units are being installed on all D8 tractors now in production.

Advantages of the units, according to the manufacturer, are found in elimination of manual lubrication of parts concerned, reduction in maintenance, and greater accessability of steering clutch assemblies. Caterpillar Tractor Co., Peoria, Ill.

All-Position Electrode Made for Pipe Welding

The Lincoln Electric Co. has announced a new E-6010 electrode, Fleetweld 5-P, suitable for all E-6010 applications but especially designed for pipe welding. In addition to having the characteristics of exceptionally

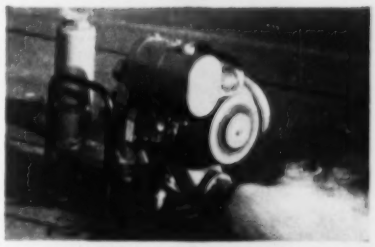
Roof Ventilators Give Silent Operation

Two new centrifugal ventilators are particularly recommended by their manufacturer if low noise levels are desired. Said to be well suited for schools, hospitals, institutions, arenas, commercial and industrial buildings, the "Centriflow" fan ventilators are available in two types: (1) a V-belt-drive model for large capacities from 675 cfm to 36,430 cfm, and (2) a direct-drive model (of spun aluminum) for installations requiring lower capacities of 408 cfm to 2,508 cfm.

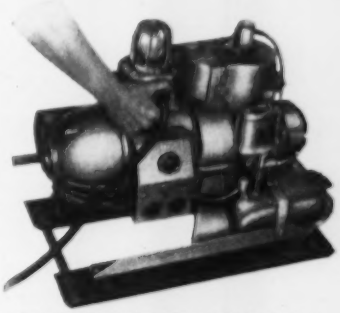
According to the manufacturer, both units have been designed for high efficiency as well as quiet operation at slow speeds. Each has a non-overloading curved-blade fan wheel. The motor is in a separate air-cooled compartment insulated for quiet.

In the V-belt model there are 13 basic sizes, 3 damper types, and motor sizes ranging from ¼ to 7½ hp. The direct drive model comes in 2 basic sizes, 4 damper types and with motors ranging from ⅓ to ½ hp. Direct drive units come ready to install. Burt Mfg. Co., Akron 11, Ohio.

CHOOSE
from a full line of
HOMELITE
Carryable
Construction
Equipment



SELF-PRIMING CENTRIFUGAL AND DIAPHRAGM PUMPS
Sizes: 1½" to 3" — capacities to 15,000 g.p.h. for dewatering and water supply.



ELECTRIC GENERATOR SETS FOR TOOLS AND LIGHTS
Complete range of sizes and voltages up to 5,000 watts.

LIGHTWEIGHT POWERFUL ONE-MAN CHAIN SAWS
Complete line of saws with clearing and brushcutter attachments for every woodcutting job.

HOMELITE
A DIVISION OF TEXTRON INC
PORT CHESTER, N. Y.

. . . insure the *COMPLETE* containment of water, wastes, sludges and sewerage in . . .

- **IRRIGATION PROJECTS**
- **INDUSTRIAL RESERVOIRS & WASTE CONTROL PONDS**
- **MUNICIPAL WATER AND SEWERAGE PROJECTS**
- **MILITARY INSTALLATIONS**

"Hydromat" hydraulic mats, developed and manufactured by the leading manufacturer of asphaltic products for over 30 years, were developed in a scientific manner to provide a lining material that would allow the COMPLETE containment of water, wastes, sludges, sewerage, etc. "Hydromat" is installed as a monolithic liner, with mechanically sealed joints, that will expand and contract with soil movements without rupturing or breaking the seal. "Hydromat", a fully exposed type of lining, may be installed quickly and easily by untrained labor . . . make-ready requires only a minimum of time and effort. "Hydromat" provides the practical answer to the problem of efficiently relining old, cracked concrete or gunite linings. "Hydromat" hydraulic mats are produced in sheet sizes 4' wide up to 12' long . . . available in thicknesses of 5/32", 1/4" and 1/2".

WRITE TODAY!

WRITE TODAY . . . for your copy of our "Hydromat" TECH-TIPS covering complete technical data on the uses and installation of "Hydromat" Asphalt Liners.

W. R. MEADOWS, INC.

16 KIMBALL ST. • ELGIN, ILLINOIS

smooth arc operation, deep penetration and good bead wash-in, the manufacturer says that the new electrode also provides minimum slag interference. The electrode produces a flat-shaped bead in an even deposit from which slag is easily removed. LINCOLN ELECTRIC CO., CLEVELAND, OHIO.

Reworked Crusher Plant Is Made More Versatile

The Cedarapids Junior Tandem crushing and screening plant has been redesigned in the interest of greater versatility and increased capacity.

One of the new features is a larger screening area gained through the installation of a half deck added to the horizontal vibrating screen and increase of the screen width by 6 in. over the old model. The manufacturer claims that the 42-in. by 10-ft by 2½-ft deck screen on the new machine not only increases capacity but adds flexibility for producing from one to three products simultaneously in sizes from 2 in. road ballast to ¼ in. IOWA MFG. CO., CEDAR RAPIDS, IOWA.

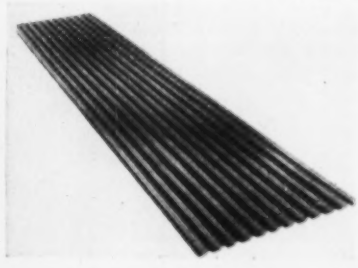
Angular Corrugated Panels For Rigid Permanent Forms

Greater strength and rigidity than with ordinary corrugated patterns is claimed for new permanent forms of an angular-ribbed design. Called Milcor Ribform, the high-tensile steel sheets are welded into place in the frame of a building and require no temporary bridging. According to the manufacturer, the product—designed for concrete floor and roof slabs—also serves as a safe non-flexible platform for the erection crew and other trades.

The new forms are cited as able to support wet concrete with a minimum deflection as well as requiring 20% less concrete than flexible forms.

Panels are also recommended as forms for lightweight insulating concrete. Also suggested are their use as forms in inaccessible areas. INLAND STEEL PRODUCTS CO., P. O. BOX 393, MILWAUKEE 1, WIS.

(*New Products continued on page 80*)



Giant Wrought Iron intake-discharge lines carry Mississippi River water to the Bayou Lafourche

There are plenty of service life hazards confronting these water lines. From the pumping station at Donaldsonville, La., to the Bayou Lafourche head waters, these lines dip into the ground for long stretches, run under highways and gravelled streets. And all along the way, they transport Mississippi River water.

Small wonder, then, that the engineers of the Department of Public Works, State of Louisiana, took special care in selecting a material that would provide maximum durability.

This thorough investigation of the hazards, plus the desire to eliminate the additional costs of special protective coatings and wrappings, led to the use of wrought iron plate. More than 394 tons of this time-tested material was fabricated into 60-inch and 48-inch lines for intake and discharge line service.

Some of the intake lines were floated to the site of the installation from the shipyard of Avondale Marine Ways, Inc. The discharge lines, welded by Cal-Metal Pipe Corp. of Louisiana, were delivered by truck and pole trailer.

Write for our bulletin, *Wrought Iron for Underground Services.*

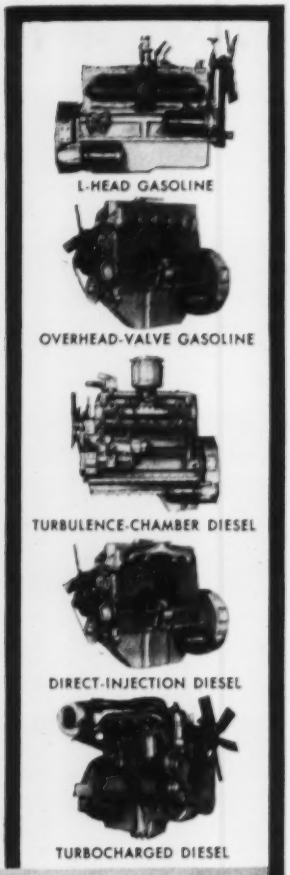
A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. International Division: New York, N. Y.

Available in Canada and throughout the world

BYERS *Wrought Iron Tubular and Hot Rolled Products*

ALSO ELECTRIC FURNACE QUALITY STEEL PRODUCTS

This is HERCULES MOTORS Today



DEPENDABLE POWER FOR INDUSTRY

Yes, this is Hercules Motors, *today*—all types of dependable power for modern industry. The Hercules line includes more than 90 different models of engines and complete power units ranging from 3 to 500 H.P.

An ever-growing list of customers are solving their power problems with these types of Hercules Engines: L-head gasoline, overhead-valve gasoline, natural gas, L.P.G., turbulence-chamber diesels, direct-injection diesels, Turbo-Charged Diesels, marine diesels and complete open, closed and base type power units.

Write for more information on any of these dependable power plants. Our sales-engineers will be happy to help solve your power problems. No obligations, of course.

HERCULES MOTORS CORP.

Engine Specialists Since 1915 • Canton, Ohio

. . . New Products

Extension Cord Hugs Floor

Electriduct is an over-the-floor electrical extension duct designed to provide a receptacle in the middle of a room without obstructing traffic. Its floor-hugging low-triangle cross section minimizes stumbling danger and eases the passage of caster-base furniture and equipment. Base width is 2¾ in., height 7/16 in. One end plugs into an ordinary wall outlet. The other is equipped with a two-way receptacle. Standard lengths are 4, 5, 6 and 10 ft. Special lengths can be ordered too. Ideas, Inc., 615 S. 2d St., Laramie, Wyo.

85 cfm Rotary Compressor

Ingersoll-Rand Company has announced addition of a new 85 cfm machine to its list of portable rotary compressors. With this addition, the Gyro-flo line of portable compressors is increased to six sizes ranging from 85 to 900 cfm.

The "85" is powered by a Continental F-140, 4-cyl, 4-cycle, L-head engine, and has push button starting. Ingersoll-Rand Company, 11 Broadway, N.Y.C.

Trencher Attachment

The Arps Corporation has announced that its heavy duty Trench Hog is now available for the new Ford 800, Ferguson 40, Massey-Harris 50 and John Deere 420 tractors. This new trencher is made in three boom lengths to provide digging depths of 3½, 5½, and 7 ft, and has changeable cutters from 6 to 20 in. in width. Arps Corporation, New Holstein, Wis.

Hinge Raises, Lowers Door

A hinge that raises the door when it opens, to clear a rug or other obstruction, will soon be available in sizes from 1 to 6 in. Said to be adaptable to all types of swinging doors, the self-closing butt consists of two sections, the upper riding on a spiral surface atop the lower one. Beckhart Hinge Co., P. O. Box 614, Apple Valley, Calif.

REDUCE CYCLE TIME BETWEEN CUT AND FILL

GET MORE TRACTION . . . LONGER TIRE LIFE

with Firestone NYLON TIRES

FIRESTONE NYLON TIRES are built to keep your job on the move. They have the extra traction and extra strength needed to reduce your equipment's cycle time and tire costs.

The treads of Firestone Nylon Tires are built to give maximum traction on the toughest haul, and they are extra tough to resist cutting. Double-thick sidewalls give added protection against cuts and snags.

Firestone's Safety-Tensioned *Gum-Dipped*® nylon cord body gives the greatest protection against impact breaks . . . flex breaks . . . heat failures . . . and water damage.

Firestone has a complete line of nylon off-the-highway tires . . . job engineered tires for every piece of earthmoving equipment.

Call your Firestone Dealer or Store for cost-cutting Firestone Nylon Tires and complete off-the-highway tire service.

A TIRE FOR EVERY ROAD, LOAD AND CONDITION OF SERVICE

GROUND GRIP GG WIDE BASE ROCK GRIP RG WIDE BASE ALL NON-SKID ALL TRACTION RIB EXCAVATOR

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Check the response-to-the-touch. You can actually feel the difference!

That's why the Paragon Drafting Machine noticeably cuts end-of-the-day fatigue . . . saves costly man hours . . . helps raise working standards.

See how easily protractor control ring can be reached—no matter what position your hand is in. Another time saver. Touch that ring with your *little* finger and scales rotate freely. Release pressure and scales automatically lock to nearest 15° position. And intermediate angles are just as easily set!

Top day-to-day performance is guaranteed by unique "open center" design of arms which protects smooth-working factory-set band tension.

A good look at a Paragon and a touch on that control ring is worth 1,000 words! Try it before you buy *any* drafting machine—you can *feel* the difference.

89 YEARS OF LEADERSHIP

In equipment and materials for drafting, surveying, reproduction and optical tooling . . . in slide rules and measuring tapes.

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NEW YORK • HOBOKEN, N. J. • Detroit • Chicago • St. Louis • Dallas • San Francisco • Los Angeles • Seattle • Montreal

Publications

Sheaves—A new bulletin, No. 165, shows specifications for Durolite sheaves carried in stock. A table gives detailed dimensions of sizes from 6 in. to 24 in. SAUERMAN BROS., INC., 620 S. 28TH AVE., BELLWOOD, ILL.

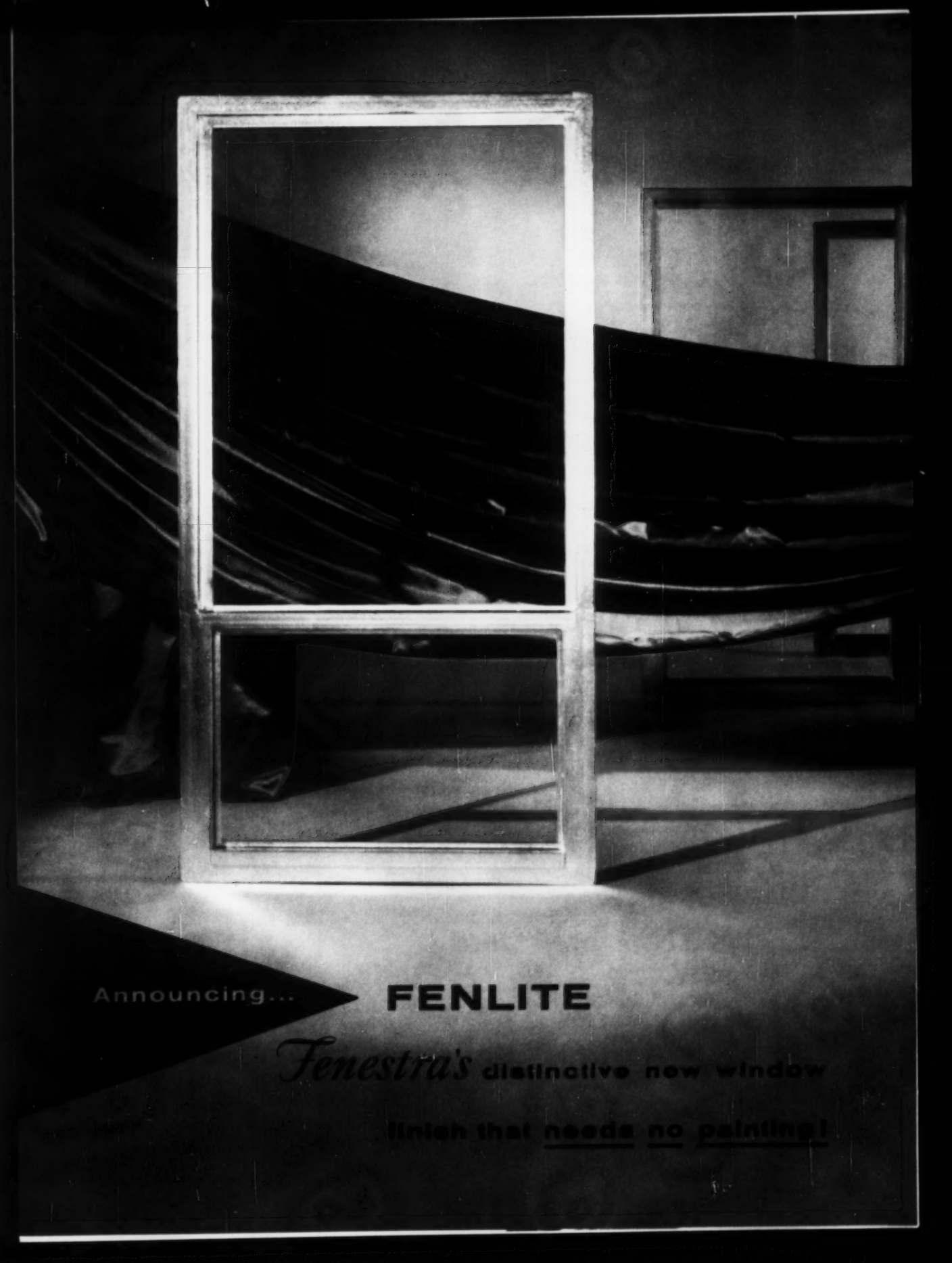
Jacks—A 15-page booklet gives a complete rundown on the various types of jacks and pullers manufactured by Simplex. Broken into four major sections, the booklet takes up standard jacks, hydraulic pullers, hydraulic jacks, and remote control pullers. TEMPLETON, KENLY & CO., BROADVIEW, ILL.

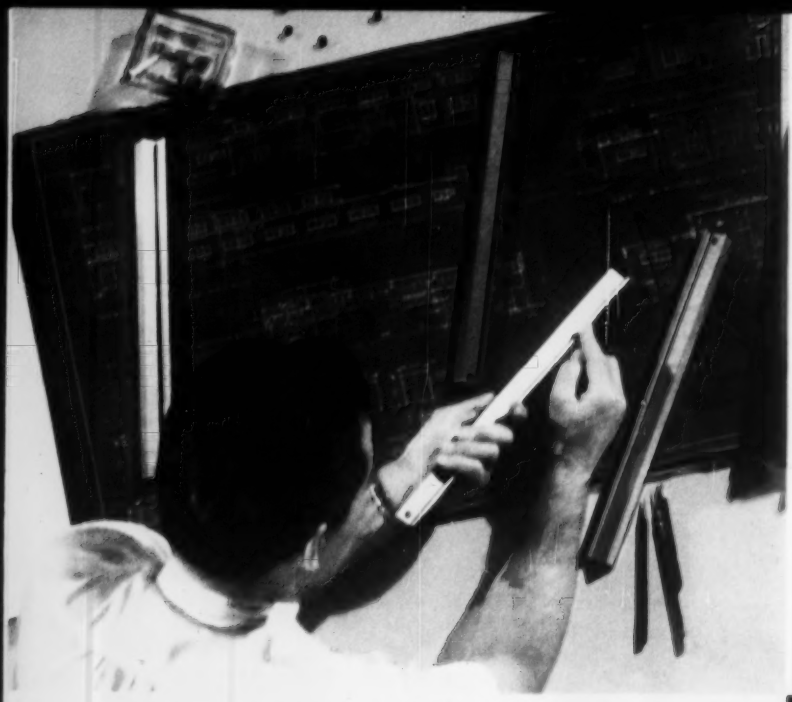
Concrete forming—A 23-page booklet listing the complete line of products of the Symons Co. describes in detail concrete forming equipment, including all-wood panel, steel-ply, high-strength panels, H-form, clamp-form, and other equipment, as well as the firm's line of hardware. SYMONS CLAMP & MFG. CO., 4249 DIVERSEY AVE., CHICAGO 39, ILL.

Hot pipe protection—In a new four-page illustrated brochure, problems and solutions of hot underground pipe insulation and protection are discussed. On-the-job photographs and a brief summary of technical data supplement the descriptive presentation. GILSULFATE, AMERICAN GILSONITE CO., 134 W. BROADWAY, SALT LAKE CITY 1, UTAH.

Aluminum projected windows—Information on a variety of types of aluminum projected windows is given in a 27-page booklet. In addition to photographs of installations, there are specifications, cross sections, window schedules and detail drawings. Psychiatric windows are among the types described. THE WILLIAM BAYLEY CO., 1200 WARDER ST., SPRINGFIELD 99, OHIO.

Twin-power scraper—Information on the Model TS-18 Twin-Power Scraper has just been released by Euclid. The twin power principle, involving the use of two engines of 218 hp each, one in the tractor and one behind the scraper bowl, each driving an axle through separate Torqmatic Drive, is explained in catalog, Form 552. Also included are condensed specifications and a performance graph to provide data on engines, transmissions, tires, scraper controls, weights, dimensions, speeds and grade ability. EUCLID DIVISION, GENERAL MOTORS CORP., CLEVELAND 17, OHIO.

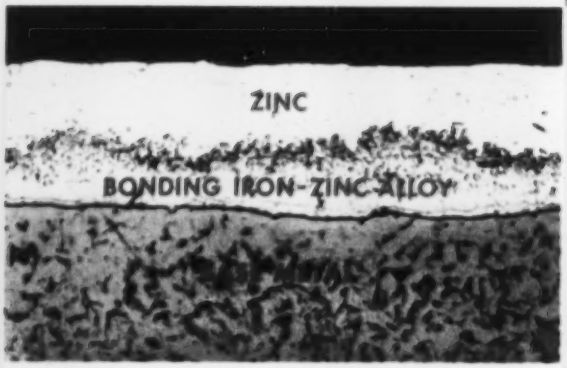

Announcing...
FENLITE
Fenestra's distinctive new window
finish that needs no painting!



exclusive

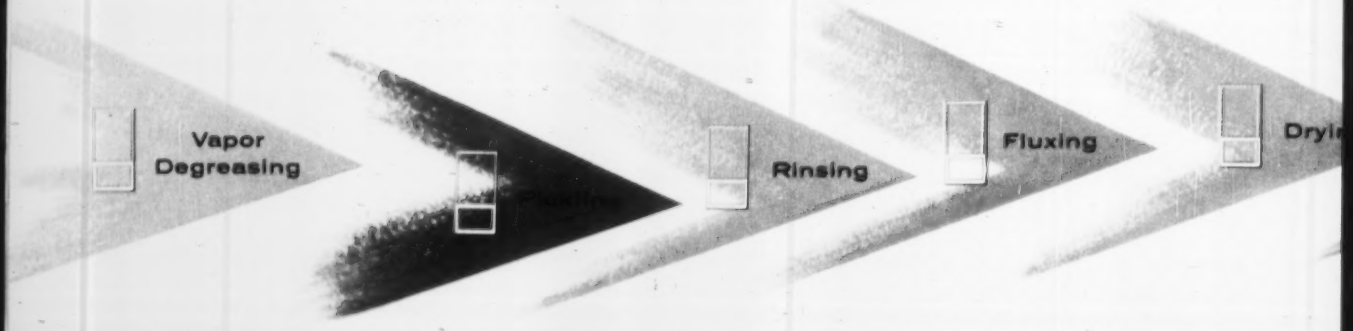
You can see the difference between FENLITE and ordinary metal windows. The distinctive FENLITE Finish adds new beauty to any building. Its lifetime corrosion protection *without paint* assures lowest maintenance costs. Ask your Fenestra Representative to show you a sample, today!

Prove the difference yourself! This bend-bar test demonstrates the stronger bond of FENLITE compared to ordinary galvanizing. Ask your Fenestra Representative to let you try it in your own office!



Here's the alloy bond of lifetime zinc to steel that assures complete corrosion protection, year after year, without painting. FENLITE protection is *self-healing, too!* Pinholes and scratches in the surface are automatically filled in by sacrificial action of the zinc. The steel window surface is protected . . . always!

▶ 8 important steps required to produce FENLITE



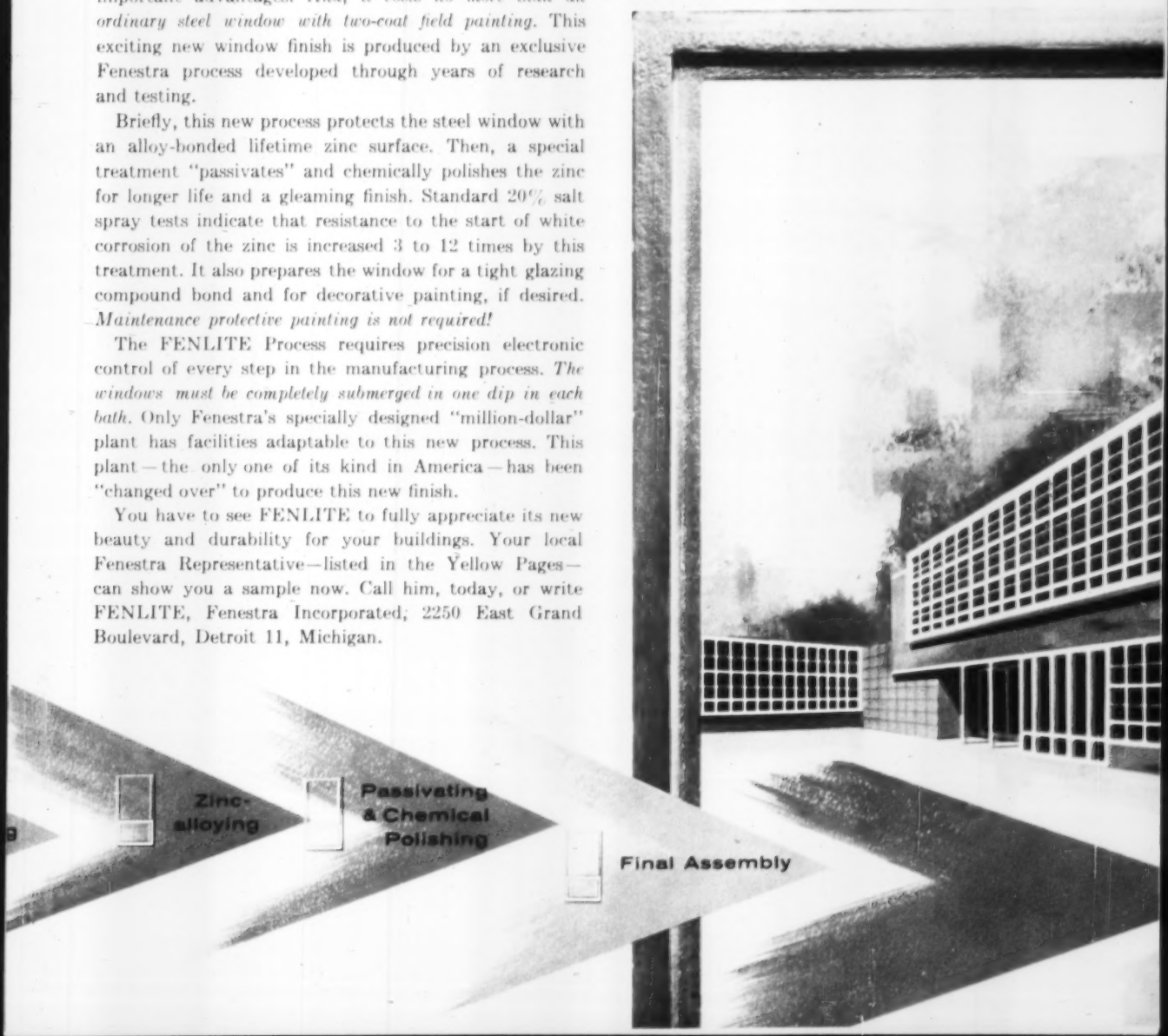
Fenestra® FENLITE process gives you steel-strong windows with NEW BEAUTY and DURABILITY!

Now, here's what you've been looking for in windows . . . distinctive appearance . . . lifetime corrosion resistance without painting . . . plus, the strength of steel. The New Fenestra FENLITE Process gives you all three of these important advantages. *And, it costs no more than an ordinary steel window with two-coat field painting.* This exciting new window finish is produced by an exclusive Fenestra process developed through years of research and testing.

Briefly, this new process protects the steel window with an alloy-bonded lifetime zinc surface. Then, a special treatment "passivates" and chemically polishes the zinc for longer life and a gleaming finish. Standard 20% salt spray tests indicate that resistance to the start of white corrosion of the zinc is increased 3 to 12 times by this treatment. It also prepares the window for a tight glazing compound bond and for decorative painting, if desired. *Maintenance protective painting is not required!*

The FENLITE Process requires precision electronic control of every step in the manufacturing process. *The windows must be completely submerged in one dip in each bath.* Only Fenestra's specially designed "million-dollar" plant has facilities adaptable to this new process. This plant—the only one of its kind in America—has been "changed over" to produce this new finish.

You have to see FENLITE to fully appreciate its new beauty and durability for your buildings. Your local Fenestra Representative—listed in the Yellow Pages—can show you a sample now. Call him, today, or write FENLITE, Fenestra Incorporated, 2250 East Grand Boulevard, Detroit 11, Michigan.

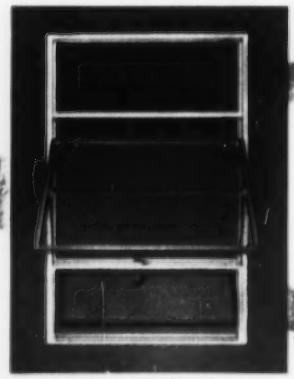


FENLITE

now available on all *Fenestra* windows!

Fenestra Intermediate Windows

High-quality, low-cost steel windows designed to provide draftless ventilation, abundant lighting, easy screening and cleaning and many other advantages for schools, hospitals, clinics, stores, commercial buildings, restaurants, religious buildings, office buildings and other monumental structures. Their slim, modern lines enhance any architectural concept. Available in a wide variety of designs, sizes and types to meet your specifications.

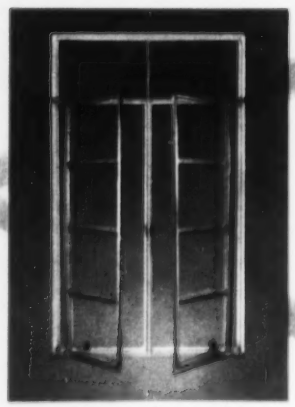


Fenestra Industrial Windows

A complete line of high-quality steel windows for all industrial and commercial buildings. Includes Commercial Projected Windows for plant office areas, Pivoted Windows for manufacturing areas, Continuous Windows for factory skylights and monitors, and Security Windows for "built-in" prowler protection in plants and warehouses. A complete selection of types and sizes.

Fenestra Residential Windows

For fine homes and apartment buildings, Fenestra Residential Windows with the New FENLITE Finish combine lifetime corrosion protection with the advantages of Color-Styling by decorative painting, if desired. Choose Fenestra Casement Windows, with or without muntin bars, Projected (Awning) Windows, or WindoWalls to make any home more beautiful and comfortable. Basement and Utility Windows are also available with the New FENLITE Finish.



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General Offices: 2250 East Grand Boulevard, Detroit 11, Michigan

Local Representatives in 200 Principal Cities. See "Fenestra Building Products" in your Telephone Directory.

Your Single Source of Supply for DOORS—WINDOWS—BUILDING PANELS

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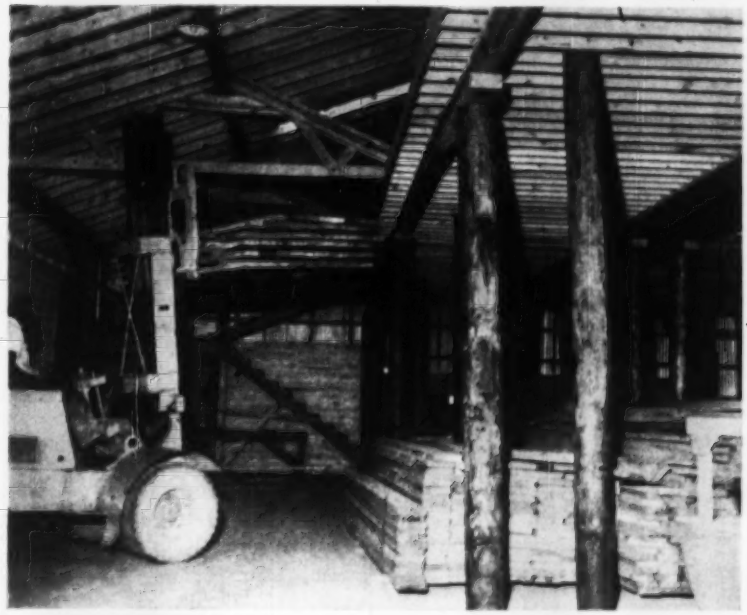
Litho in U.S.A.



Poles—A Way to Keep Costs Way Down

Suspended Operations

A low-level marquee blocked installation of ground-supported scaffolding for bricklayers on a 600-ft-long shopping center. So, Anchor Masonry Co., of Washington, D. C., rigged a 65-ft-long rooftop scaffold overhanging the edge of the building, counterweighted it with cinder blocks, and hung ladder frames for the working platform over the side. Mounted on 8-in. casters, the scaffold was rolled along as the work progressed. Two workmen put the tubular scaffolding together in one day, disassembled it in half a day.

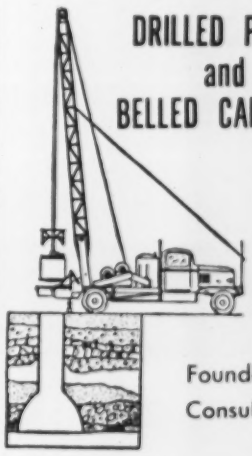
Only $1.50 psf is the cost for a new pile-supported New Orleans warehouse. Built by a Gulf Coast contractor to store his building materials, the 60 x 100-ft structure went up for $15,000. It offers 6,000 sq ft of area on its main concrete floor, 4,000 sq ft on a mezzanine. In addition, the builder used his own crews intermittently and completed the building in 45 days.

Low cost was largely achieved through the use of wood "poles" to support the building. The contractor, Gurtler, Hebert & Co., Inc., of New Orleans uses thousands of treated piles annually in residential, industrial and commercial construction. When space was needed for storing building materials, the firm naturally looked to its pile yard for the key element of a low-cost building.

For the building, 6-in. poles, 35 ft long, were chosen. Those supporting the wood-truss roof were driven 17 ft into the ground, those carrying the mezzanine 25 ft. The mezzanine will take a load of 150 psf.

To preclude rot, poles treated with pentachlorophenol and provided by Crosby Forest Products Co., Picayune, Miss. were selected.

The new structure adjoins two existing buildings. In event of future expansion, it can easily be converted into office space.



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Foundation
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Caisson Sizes . 16" to 84"
Bell Sizes . . . . . 2' to 15'
Shaft Depths . . . . to 200'

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Phone (Chicago) . . . Austin 7-3584
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Special Hoists
FROM STANDARD PARTS

One of Eight Special Electric Incline Hoists with 36" diameter x 26" face drums, built for unbalanced duty of 1,500 lbs. at 200 FPM

• By modifying and re-combining our standard parts, Superior-Lidgerwood-Mundy can engineer hoists to meet your specific requirements at the lowest possible cost.

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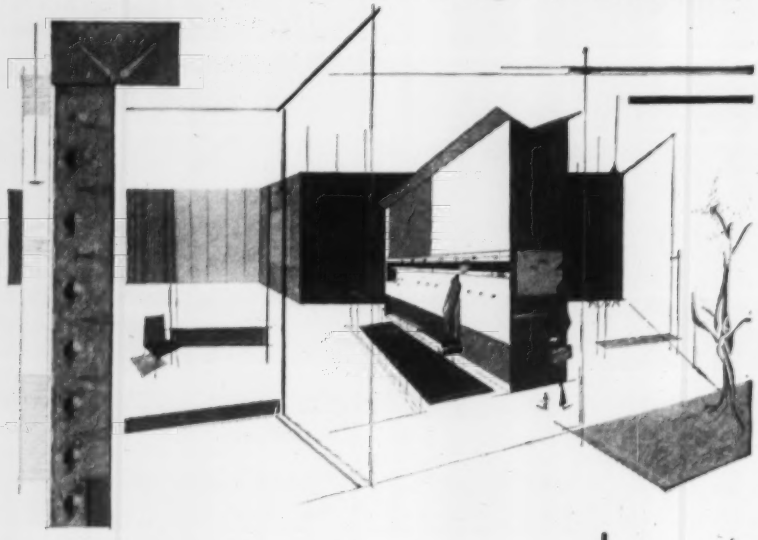
MARS outstanding design **SERIES**



chef-less restaurant

This concept of Sue Vanderbilt, Pratt industrial-design graduate now designing GM auto interiors, would assemble a whole meal and cook it by microwave in a few seconds. Customer would merely check picture menu, insert money, push buttons. By the time he reached the far end of the counter the meal would be waiting, piping hot. All components already exist.

Many designs that will make news tomorrow are still in the "bright idea" stage today. No one knows which will flower into reality. But it will be important in the future, as it is now, to use the best of tools when pencil and paper translate a dream into a project. And then, as now, there will be no finer tool than Mars—sketch to working drawing.

Mars has long been the standard of professionals. To the famous line of Mars-Technico push-button holders and leads, Mars-Lumograph pencils, and Tradition-Aquarell painting pencils, have recently been added these new products: the Mars Pocket-Technico for field use; the efficient Mars lead sharpener and "Draftsman's" Pencil Sharpener with the adjustable point-length feature; and — last but not least — the Mars-Lumochrom, the new colored *drafting* pencil which offers revolutionary drafting advantages. The fact that it blueprints perfectly is just one of its many important features.

The 2886 Mars-Lumograph drawing pencil, 19 degrees, EXEXB to 9H. The 1001 Mars-Technico push-button lead holder. 1904 Mars-Lumograph imported leads, 18 degrees, EXB to 9H. Mars-Lumochrom colored *drafting* pencil, 24 colors.

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at all good engineering and drawing material suppliers

Men and Jobs

Zola Gets Navy Assignment In Pacific Northwest

Capt. Stanley P. Zola has relieved Capt. James R. Davis as District Civil Engineer and District Public Works Officer for the Thirteenth Naval District. This district includes Washington, Oregon, Idaho and Montana.

Captain Zola is a graduate of the University of Wisconsin. He was an officer in the Civil Engineer Corps Reserve, and was recalled in 1941. He has just completed a tour of duty as Officer in Charge of Construction in the Republic of the Philippines.

Captain Davis is now on duty in the Bureau of Yards and Docks as Assistant Chief for Maintenance and Material.

Ex Idaho Roads Chief Joins Phoenix Consultant

E. V. Miller, who has resigned as Idaho State Highway Engineer, will join the firm of Johannessen and Girand, consulting engineers of Phoenix and Tucson, as engineer in charge of that firm's highway division. He had served for 28 years in Arizona's highway department and was assistant highway engineer there before accepting the Idaho post in 1951.

Active in the American Association of State Highway Officials, Miller also has served on the executive committee and as vice president and president of the Western Association of State Highway Officials.

FSIWA Names Jensen To Fill Unexpired Term

Emil C. Jensen, Chief of the Engineering and Sanitation Division of the Washington State Department of Health is the new vice president of the Federation of Sewage & Industrial Wastes Associations. He will fill out the unexpired term of John W. Cunningham, who has had to resign.

A civil engineering graduate of the University of Washington in 1936, Jensen received a Master of Science degree from Harvard University two years later. In 1941, he became a district engineer for the Washington State Department of Health and held this post until assuming his present position in 1945.

Jensen's previous activity in the federation led him to the presidency of the Pacific Northwest Sewage and Industrial Wastes Association in 1952, and he became a national director of the association in 1953. A mem-

What about rubber alloys for asphalt seal coats?

Many highway engineers, contractors and officials have asked about the actual value of alloying asphalt with rubber for seal coats and light surface treatments. Our best answer is to try RUBARITE and see.

RUBARITE is a powder of unvulcanized synthetic rubber combined with minute particles of a special carrier for easy handling, rapid mixing and thorough dispersion to assure maximum improvements.

We can show you how RUBARITE reinforces asphalt to improve its toughness, adhesion, ductility, flexibility and susceptibility to heat and cold. We also can show you how these improvements relate to seal coats.

And we can cite case after case where, compared to regular asphalt, RUBARITE permitted coating in cooler weather, gave mats up to twice the thickness, set up quicker allowing an earlier return of traffic and produced unusually high cover stone retention.

Cost? We have figures to prove RUBARITE adds no more than a few cents per square yard, can often save you money through use of local stone or less asphalt or less loss of cover stone.

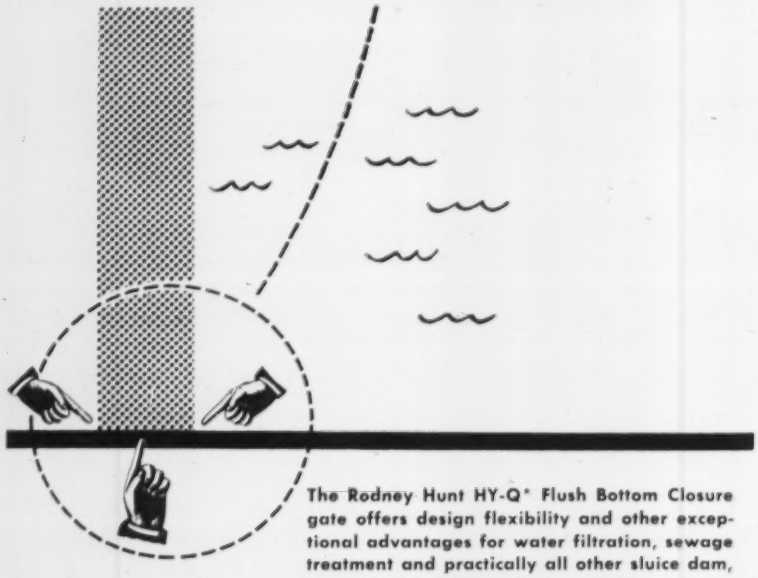
But the best test is your test! Why not write for details, samples and the free booklet, "Bitumen Rubberizers" which also details the use of RUBARITE for more durable hot-mix jobs and other applications. Address: Rubarite, Incorporated, 1702 Philtower Building, Tulsa, Oklahoma.

RUBARITE INC.

Rubarite—T. M. Rubarite, Incorporated, Tulsa, Oklahoma

Jointly Owned by The Goodyear Tire & Rubber Company, The National Lead Company and Bird and Son.

the HY-Q Sluice Gate
seats flush on the bottom of the channel!



The Rodney Hunt HY-Q* Flush Bottom Closure gate offers design flexibility and other exceptional advantages for water filtration, sewage treatment and practically all other sluice dam, channel and chamber flow control.

1. You get maximum flow because there is minimum turbulence at the point of greatest head.
2. You get *complete* drainage naturally; no need for pumps and piping to get out water trapped behind a sill.
3. You get maximum clear opening because full flow at every raising of the gate sweeps the channel clear of silt and debris.
4. You get maximum hydraulic gradient because the HY-Q gate seats at the lowest level of the channel.

Send for a new 12-page catalog — No. 75 — giving complete description and specifications of the patented Rodney Hunt HY-Q Flush Bottom Closure Sluice Gate.

*HY-Q is a trademark of Rodney Hunt Machine Co.

RODNEY HUNT MACHINE CO.
Water Control Equipment Division
85 LAKE STREET, ORANGE, MASSACHUSETTS, U.S.A.

RODNEY HUNT

ber also of the American Society of Civil Engineers, he was president of the Spokane Section in 1944 and of its Seattle section in 1955. He is also a sanitary engineer (Res.) of the U. S. Public Health Service.

Jensen was elected to the vice presidency by a special letter ballot of the federation election committee to fill out the term of John W. Cunningham, consulting engineer of Portland, Ore., who was obliged to resign his office this summer for reasons of health and personal responsibility.

Virginia Ports Board Names New Engineer Head

Donald C. Hill has been named chief engineer of the Virginia State Ports Authority.

Hill, who retired from the Corps of Engineers in 1954 with the rank of colonel, is a West Point graduate. He did graduate work at M.I.T. During his term of service, he was responsible for engineering projects on Okinawa and in Pusan, and for two years, headed a repatriation group with the staff of General Marshall in China.

T. C. Gary Leaves Du Pont

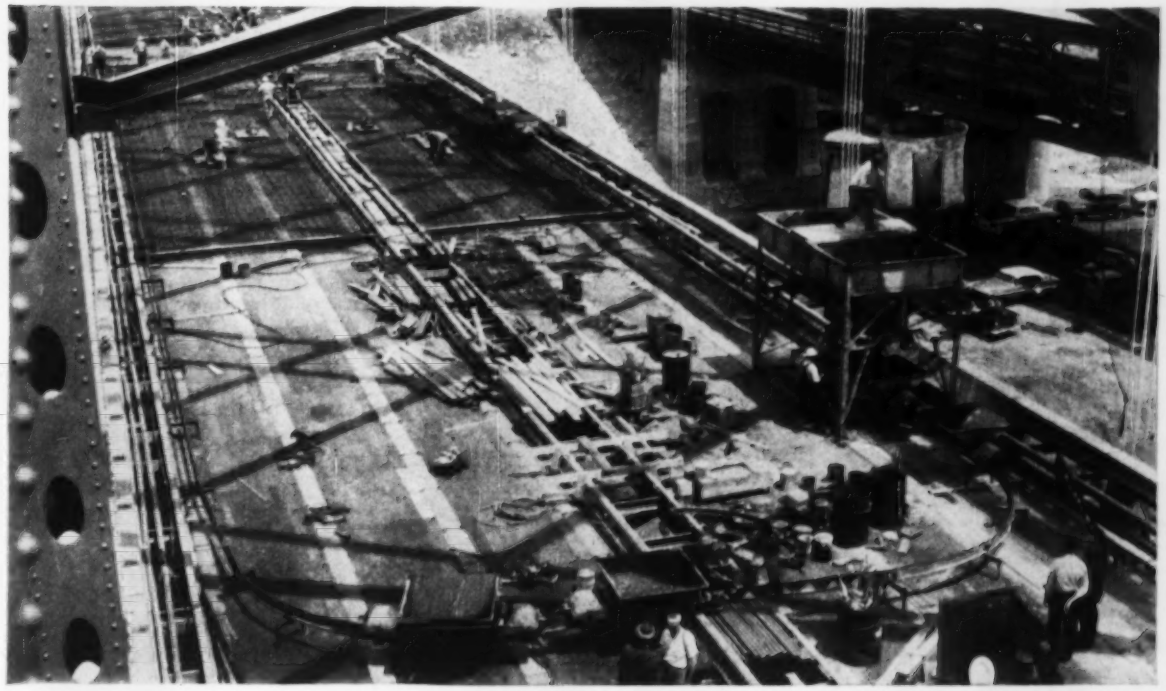
Tom C. Gary, Du Pont design head during World War II and present administrative assistant of the engineering department, retires from the company at the end of August after 39 years. He was manager of the design division of the engineering department when assignments included the building of 54 defense plants at 32 different sites. Among these projects was the huge Hanford Engineer Works, atomic energy project, which exceeded $1 billion.

Men and Job Briefs . . .

• **Associations**—The National Association of Home Builders names **William A. Molster** as director of the newly created NAHB Merchandising Department . . . **W. Haywood Gox** of Winston-Salem, N. C., is elected president of the Ceramic Tile, Marble and Terrazo Contractors Association of North Carolina.

• **Corps of Engineers**—**Col. Karl T. Klock, Jr.**, is appointed executive officer of the Missouri River Division, Corps of Engineers, with headquarters at Omaha, Neb. . . . **Col. John D. Holm**, assistant district engineer for the Corps at Fort Worth, is named deputy engineer for the Sixth Army at San Francisco, Calif.

(*Continued on page 92*)



Thirty yards an hour around the loop.

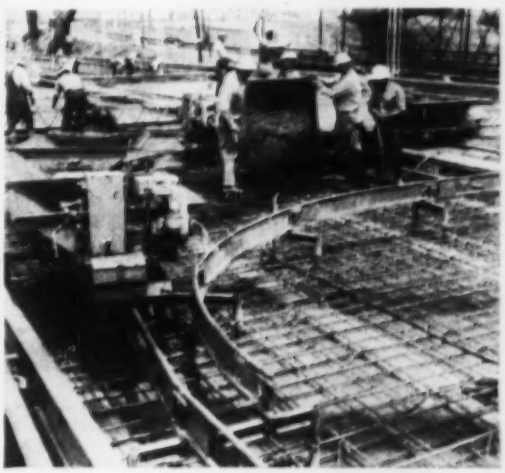
TOLL BRIDGE FAR AHEAD OF SCHEDULE WITH REX RAIL PORTER

The deck of the new Kansas City toll bridge is being poured with the aid of CHAIN Belt's new Rex Railporter...and because of this revolutionary new method of concrete transportation and placement, the bridge may be done weeks ahead of schedule! A terrific saving in time and earlier toll revenue.

The Rex Railporter, a portable construction materials transport, whisks along with a 20-cubic-foot load of concrete down its single rail from loading bin to pour site faster than you can say "Missouribridgekansascity." The Rex Railporter runs unattended and stops automatically. Two men can easily lay 100 feet of track in less than 20 minutes.

The J. A. Tobin Construction Company, using three Railporters with trailer units on an oval track, pours about 30 yards an hour . . . the same pouring rate would require a fleet of power buggies.

If you have a concrete placement or materials transportation job over reinforcements, open cuts, muddy terrain, excavations or water...investigate the Rex Railporter at your Rex Distributor or write for Bulletin No. 56-47, CHAIN Belt Company, 4633 W. Greenfield Avenue, Milwaukee 1, Wis.



Another rail is ready as the pour approaches.

CONSTRUCTION REX MACHINERY

CHAIN BELT COMPANY

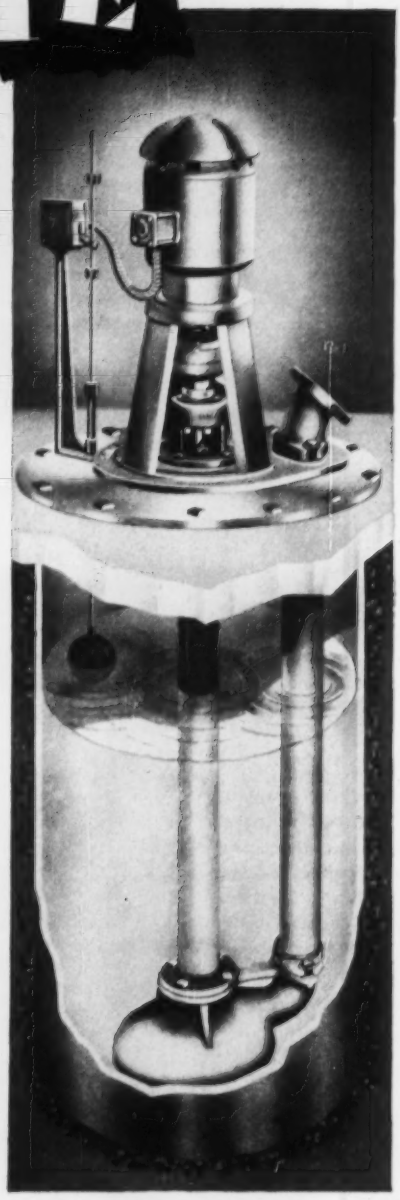
Pump Liquid WASTE with the weil Heavy duty Sewage Ejector

The Weil screenless sewage ejector with the NON-CLOG impeller effectively handles large diameter solids, rags and stringy material of various lengths which are washed into the sewage pit.

RUGGEDLY BUILT: This factory assembled unit has an ample reserve of strength to meet the most severe conditions and furnish years of trouble free operation.

SIMPLIFIED PIPING: Only one piping connection required. An economical installation.

The **NON-CLOG** Impeller (illustrated below) built into the WEIL Screenless Sewage Pump supplies the ideal method of pumping sewage and unscreened liquids containing solids.



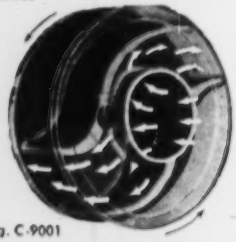


Fig. C-9001

Successfully handles the tough jobs where other pumps fail.

Send for Bulletin C-900 E. Weil Representatives and Weil Engineers are available to help solve your waste pumping problems.

weil PUMP CO.

1528 No. Fremont St. Chicago 22, Illinois

. . . Men and Jobs

• **Careers**—The Housing and Home Finance Agency names **H. Kingston Fleming** as assistant administrator of the agency . . . The U. S. Public Health Service names **Theodore J. Bauer** as deputy chief of the Bureau of States Services replacing **Leroy E. Burney,** recently appointed Surgeon General of the Service . . . **Eugene W. Fitzgerald,** associate engineer in the Division of Engineering, Buffalo, N. Y. is appointed director of the City Planning Commission.

• **Business**—The Associated Construction Co., of Hartford, Conn., elects **John G. Hamill** and **Richard J. Hill** as vice presidents of the firm . . . **W. Stewart Nelson** and **Joseph J. Cussen** are named vice presidents of American & Foreign Power Company, Inc., located in New York City . . . **George S. Hume** joins the Westcoast Transmission Company, Ltd., Vancouver, B. C. as vice president and chief geologist.

Charles W. Yoder, Milwaukee, Wis. dissolves the consulting partnership with Ned E. Fisher to form the consulting firm of Charles W. Yoder & Associates of Milwaukee, Wis. . . . **Carlton Fleming** and **William Sturges** of Charlotte, N. C. form General Surveyors, Inc., of Charlotte, a surveying and civil engineering firm.

• **Honors**—ASCE awards **Ralph E. Boeck** of the Department of Civil Engineering at Marquette University, Milwaukee, Wis., the Ernest E. Howard Award for meritorious service in the field of structural engineering and construction. The society also honors **Allen J. Curtis,** lecturer in engineering at the University of California and **Frank E. Richart, Jr.,** of the Department of Civil Engineering, University of Florida with the Thomas A. Middlebrooks Award for an outstanding published paper by the society's soil mechanics and foundation division.

Morris Goodkind, former director and chief bridge engineer of the New Jersey State Highway is honored with the 1956 Engineering Award by the New Jersey Society of Professional Engineers for outstanding achievements in bridge design and his contributions to the advancement of the engineering profession.

• **Retirements**—**Thomas L. Pierce,** dean of construction superintendents in the DuPont Company's engineering department retires after a 22 year career.

EFFICIENT PLANNING

Starts with RIC·WIL

● Early planning with a RIC-WIL field representative on central heating or air conditioning systems will mean less work later on. Custom engineering and prefabrication of RIC-WIL units offer quick, efficient installation. RIC-WIL's engineering service with forty-five years experience in the Insulated Piping Field is available for *early* planning and consultation.

Write or phone your nearest representative or send for the illustrated RIC-WIL catalog.

Quality Piping Systems . . .
. . . of Exceptionally High Thermal Efficiency

RIC·WIL INCORPORATED — PREFABRICATED **INSULATED PIPING SYSTEMS**

BARBERTON, OHIO

IN CANADA: THE RIC-WIL COMPANY OF CANADA LIMITED

There is No Worry about Failures or Maintenance Costs with TRU-LAY *PUSH*-PULL Remote Controls

• On Construction Equipment they are being adopted by an ever-increasing number of engineers because they are Rugged, Trouble-Free, Accurate and Adaptable to all sorts of mechanical situations.

Long Life is a matter of record. We have never heard of a TRU-LAY *Flexible* PUSH-PULL CONTROL wearing out in normal service. Failures, that sometimes harass users of more complex controls, are eliminated by the use of these simple, positive-action Push-Pulls.

Dependable Operation of these controls is a certainty, even under the most adverse conditions . . . HOT as jet engines (Note: TRU-LAY PUSH-PULLS are actually performing on hot jet applications) . . . COLD to 70° F. below zero . . SOAKIN' WET . . . ABRASIVE . . . or just plain TOUGH.

Freedom from Trouble is assured because of such features as . . . full protection of the inner, working member by the tough flexible conduit . . . lubrication of the working member *for life* during assembly . . . seals that keep moisture, dust and other foreign matter out of the unit . . . cold swaging of fittings that makes them integral parts of the control unit.

Accuracy is inherent in the basic design of TRU-LAY PUSH-PULLS. They are precision products, not gadgets.

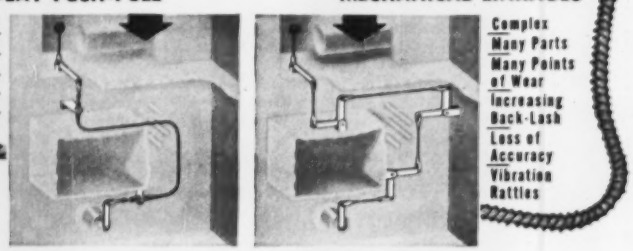
Capacity ranges from light jobs up to jobs of 1,000 lbs. input. These Push-Pulls will handle jobs 150 feet or more from the control point.

Adaptability to all sorts of mechanical situations explains, in large measure, the use of TRU-LAY PUSH-PULLS on literally hundreds of different machines and equipment. The *flexibility* of these controls makes it possible to provide positive, remote-action whether anchorages are fixed or movable . . . it damps out noise and vibration . . . and reduces the number of working parts.

• • •

TRU-LAY PUSH-PULLS are "Solid as a rod but *Flexible* as a wire rope." This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all elements of remote controls.

***Advantages** of Tru-Lay Push-Pull flexibility and simplicity are pictured below*



Widely Used on Construction Equipment

• These accurate and dependable Remote Controls are used on a wide range of Construction Equipment . . . Tractors and their accessories, Power Shovels, Winches, Graders, Road Oilers, Dump Trucks, Snow Plows, Engine-driven Pumps, Crushers, etc.

On such equipment TRU-LAY PUSH-PULLS are used for the remote control of Transmissions, Hydraulic and Air Valves, Brakes, Clutches, Throttles, Chokes, Governors, Power Take-Offs, and on many other applications.

Our DATA FILE will answer your further questions
Write for a copy, without obligation

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Obituaries

Ralph H. Burke, 72, head of the engineering firm bearing his name, and airport consultant for Chicago, died Aug. 23 in that city. He was a civil engineer graduate of M.I.T. in 1906, and had since then been engaged in private and public engineering in the Chicago area. His public works activities include 15 years with the sanitary district of Chicago, 12 years as chief engineer of the Chicago Park district, and 5 years as chief engineer of the city's Department of Subways and Superhighways. Among his recent outstanding contributions to Chicago transportation and public works facilities are the design and construction supervision of O'Hare International Airport, Meigs Airfield, and the Grant Park underground parking garage.

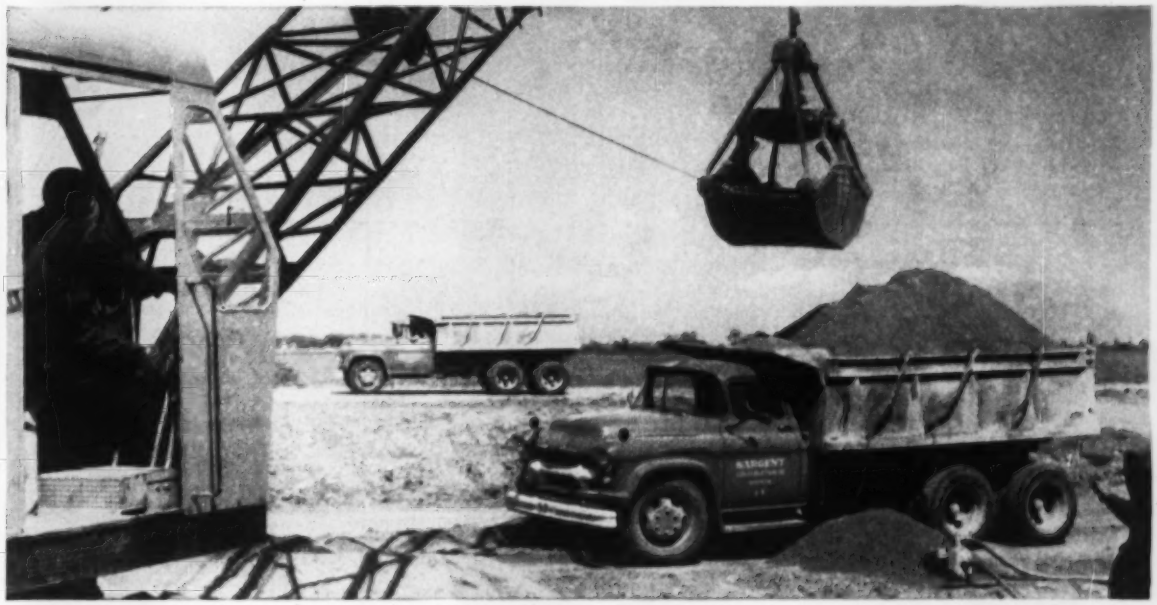
Joseph G. Shryock, 76, former president of the Belmont Iron Works and director of the American Society of Civil Engineers and American Institute of Steel Construction, died Aug. 29 at North Conway, N. H. Mr. Shryock graduated from Pennsylvania Military College in 1900 with a degree in civil engineering. His early career included service with the American Bridge Co. and the Virginia Bridge and Iron Co. Joining Belmont in 1904 as a draftsman, he became chief engineer in 1922, president in 1940.

Isaiah Stanton Lank, 70, structural engineer, died Aug. 14 at Wilmington, Del. After graduating from the University of Delaware in 1913, Lank operated his own architectural engineering firm in Davenport, Iowa, for about 15 years. Returning to Delaware in 1931, he worked on a number of major construction projects in the state, including the Chrysler Tank Plant at Newark and the New Castle County Airport.

Wythe M. Peyton, 70, formerly a director of the North Carolina unit of the ASCE, died in Asheville, N. C. on Aug. 18. A native of Virginia, he attended Virginia Military Institute and Roanoke College. In 1915 he became the first division engineer employed by the North Carolina Highway Department and had a territory that covered 22 counties in the western part of the state.

Lewis George Hohman, 57, engineer in design division of E. I. du Pont de Nemours and Co. for 27 years, died Aug. 18, at Wilmington, Del.

PERFORMANCE REPORT ON AMERICA'S BEST SELLING TRUCKS:



"WE ORDERED 10 CHEVY TANDEMS . . . ONE OF THE MOST PROFITABLE MOVES WE'VE EVER MADE!"

. . . says Mr. F. Roland Sargent, Sargent Construction Company, Saginaw, Michigan—a typical user of Chevrolet heavy-duty trucks.

"After sizing up these new models . . . we ordered 10 of them. *And let me say it has been one of the most profitable moves we've ever made.* During the wet spring this year, we had conditions on a job near Bay City which were worse than our firm has ever operated in . . . I honestly didn't think any truck could plow through that sea of wet, oozy muck. But we decided to make a try. When those Chevy tandems went in, the mud sucked them down on their axles . . . sometimes two-thirds of the wheels were actually buried . . . those trucks were literally crawling on their bellies. But they kept rolling. And, to my amazement, we didn't even have to lighten the nine-ton loads!

"Let me sum up by putting it this way. We've put in a new order to enlarge our Chevrolet tandem fleet."

Why not see *your* dealer soon? . . . Chevrolet Division of General Motors, Detroit 2, Mich.

***Modern features* make new Chevrolet trucks the Performance Champs of the Heavyweight Class!**

New short-stroke 195-hp Loadmaster V8 powers Chevrolet top-tonnage trucks!

New Powermatic* — the first automatic transmission designed specially for big trucks!

New Triple-Torque Tandems hike G.V.W.'s to 32,000 lbs., G.C.W.'s to 50,000 lbs.!

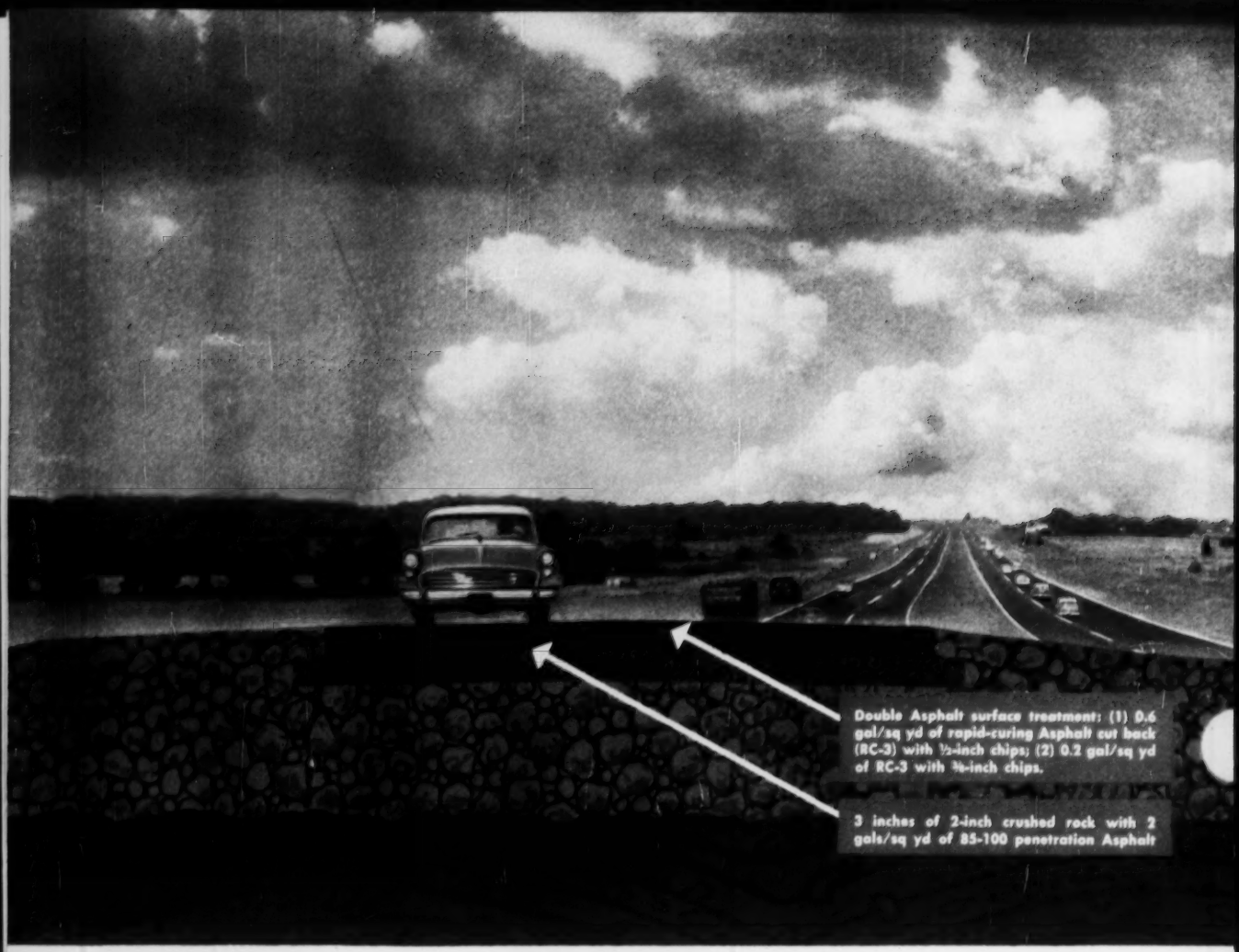
Spicer 5-speed transmission† for extra pulling power, improved economy.

*Optional, extra cost, Series 5000 through 10000 models.
†Optional, extra cost, Series 9000 and 10000 models.

CHEVROLET

NEW CHEVROLET TASK·FORCE TRUCKS

Anything less is an old-fashioned truck!


Double Asphalt surface treatment: (1) 0.6 gal/sq yd of rapid-curing Asphalt cut back (RC-3) with ½-inch chips; (2) 0.2 gal/sq yd of RC-3 with ⅜-inch chips.
3 inches of 2-inch crushed rock with 2 gals/sq yd of 85-100 penetration Asphalt

This ASPHALT superhighway costs New Hampshire

Since June 25, 1950, this New Hampshire Toll Road has been proof-in-operation of Asphalt pavement economy. Low in first cost. Low in maintenance cost.

ASPHALT construction saved $85,000 per mile in *first* costs, as well

Yes! This is the figure reported by New Hampshire authorities. $36.07. That's for maintaining pavement alone . . . all four lanes. The average cost per mile, per year during the first five years operation of New Hampshire's 14.7-mile Asphalt Turnpike . . . linking Asphalt Turnpikes of Maine and Massachusetts.

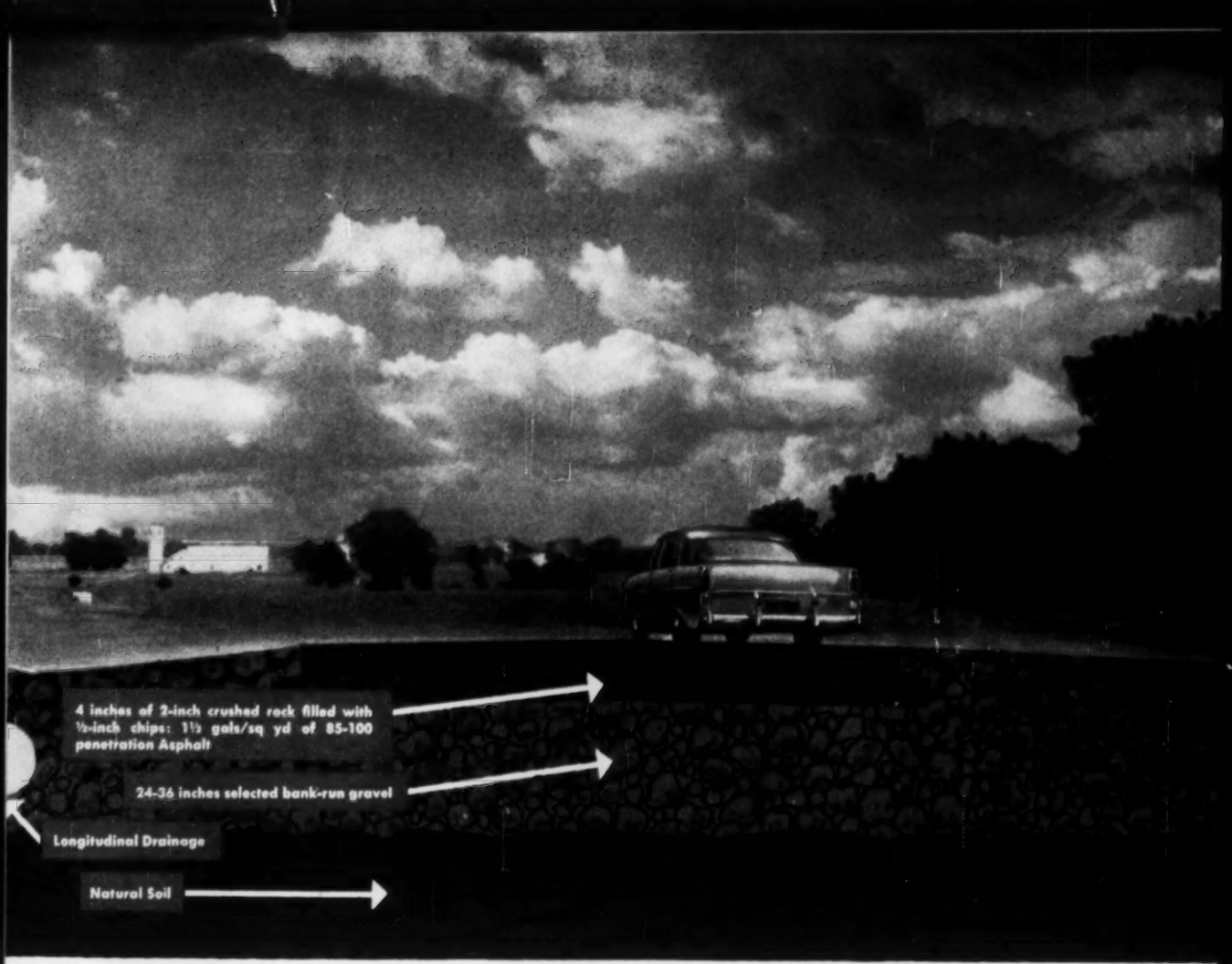
What's the five-year overall total? $2,651.06! Per year? $530.21! Per vehicle? (there were 14,520,723 of them) $.000175!

Can these be considered "yardstick" figures?

Yes! Other modern heavy-duty Asphalt pavements that carry heavy traffic and are in areas of severe weather variation have maintenance costs comparable to these. These maintenance figures seem remarkable . . . almost unbelievable . . . but such remarkable savings can be expected when heavy-duty rugged Asphalt pavements are properly engineered and constructed.

How was this low-maintenance pavement designed?

The section above shows basic construction . . . first a carefully selected sub-base, then two courses of Asphalt penetration


4 inches of 2-inch crushed rock filled with ½-inch chips: 1½ gals/sq yd of 85-100 penetration Asphalt
24-36 inches selected bank-run gravel
Longitudinal Drainage
Natural Soil

only $36.07 to maintain (per mile, per year)

macadam, topped with a double Asphalt surface treatment. Most sub-base material came from the right-of-way or adjacent borrow.

Bids for the Asphalt structure ran $85,000 per mile under next lowest bids for pavement of comparable specifications. Such a saving pays for many years of maintenance . . . not only of the pavement but of the entire right-of-way.

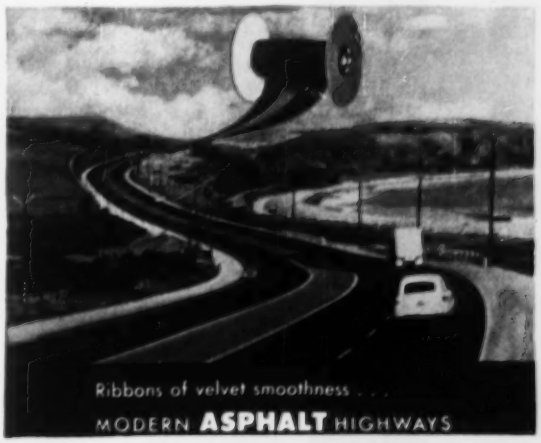
What about performance?

John O. Morton, New Hampshire Commissioner of Public Works and Highways, has this to say, "The pavement has shown performance during its first five years of use that leaves nothing to be desired."

For low costs, long life, high performance . . . for smooth, safe riding . . . design for Asphalt construction.

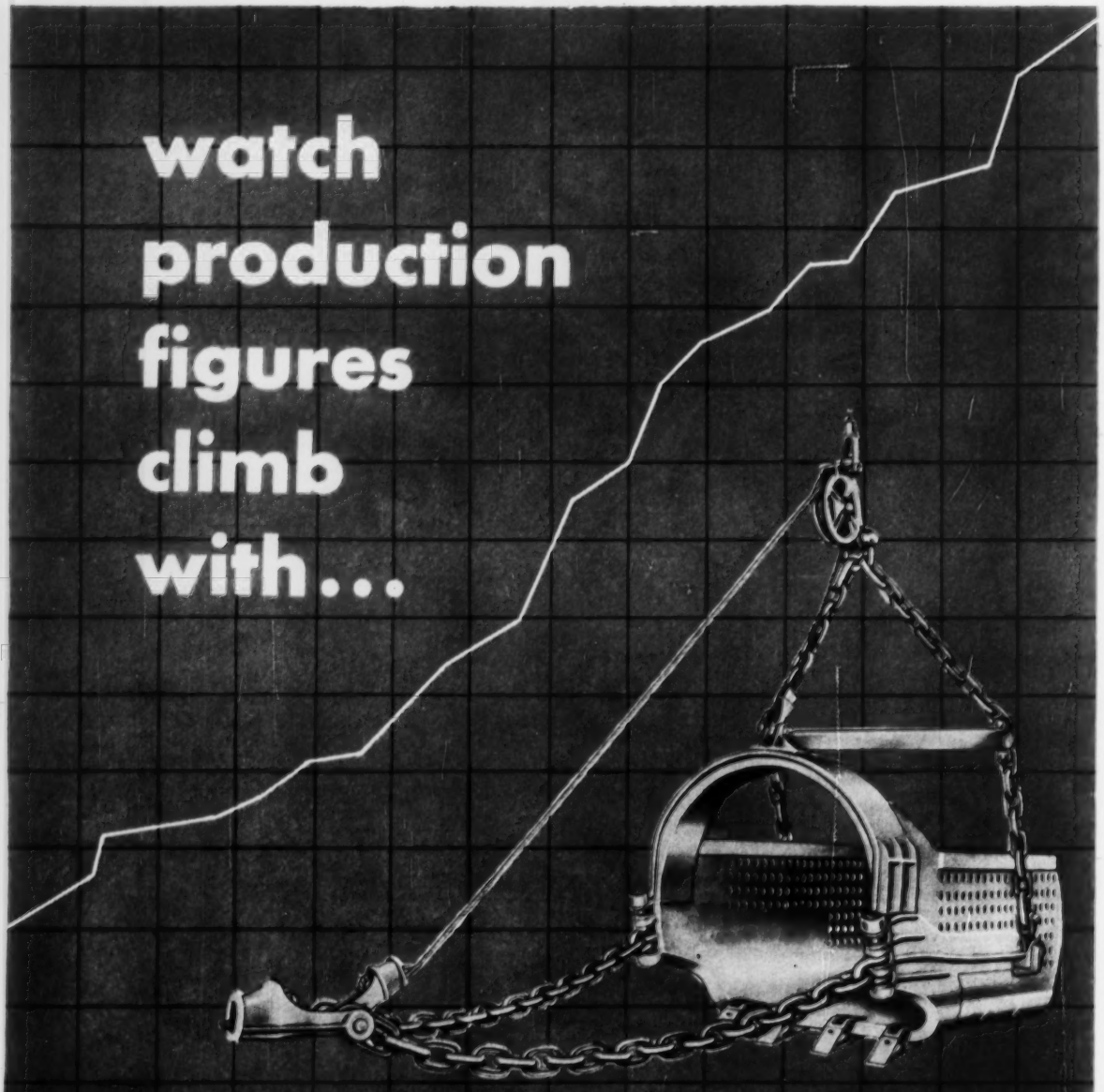
Safety is not a function of cost

Despite its low construction and maintenance costs, New Hampshire's Asphalt Turnpike has achieved one of the best safety records on major highways in the nation.



THE ASPHALT INSTITUTE
Asphalt Institute Building, College Park, Maryland

watch production figures climb with...



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Jan. 28-Feb. 2, 1957

The Theory of Damages For Property Injuries

Where property has been injured and can be repaired, the true measure of damages is the reasonable cost of making repairs provided this cost is less than the value of the property before it was injured.

The purpose of awarding compensatory damages is to make the injured party whole, but not to enable him to make a profit from said injury.

In one action to recover damages to property, the jury brought in a verdict in the amount of $4,417.76. An appeal was taken on the ground that the amount was $717.76 in excess of the value of the property before the injury. The appellate court reduced the verdict by $717.76 and affirmed the judgment in the reduced amount.[1]

(1) Santiemmo v. Daya Transfer, Inc., 133 N.E. 2d 539, Appellate Court of Illinois, April 3, 1956.

Contractor in Default Not Allowed to Recover

As a general rule, a contractor who wilfully departs from the terms of a contract or substantially defaults in its performance cannot recover for the work he has done.

Earlier this year, there was a Massachusetts case in which a contractor sued to recover a balance he claimed was due under a contract to install a boiler in a building. The owner said the work was defective and counterclaimed for the cost of remedying defects in the work. The trial court, found as a fact, that the work as installed was defective and directed that judgment be entered in favor of the owner. This judgment was affirmed on appeal.[1]

One of the points raised by the contractor on appeal was that the trial judge improperly refused to grant the contractor's request to find that the evidence was insufficient to warrant a finding in favor of the owner that the work had been defectively performed. As to this point, the appellate court, stated: "There was no error in the denial of the second request. The granting of that request would have amounted to a ruling that as a matter of law the contractors were entitled to recover. Plainly such a ruling could not properly have been given. It could have been found on the evidence that there was a wilful departure or default by the contractors in the performance of a substantial stipulation of the contract. In such a case there could be no recovery either upon the contract or upon a quantum meruit (fair and reasonable value of work done). Glazer v. Schwartz, 276 Mass. 54, 57, 176 N.E. 613; Russo v. Charles I. Hosmer, Inc., 312 Mass. 231, 232-233, 44 N.E. 2d 641; Andre v. Maguire, 305 Mass. 515, 26 N.E. 2d 347; LeBel v. McCoy, 314 Mass. 206, 209-210, 49 N.E. 2d 888."

(1) Ricciardone v. Carvelli, 134 N. E. 2d 905, Supreme Judicial Court of Mass., May 31, 1956.

Need a Valid Contract Before Can Be a Breach

Before a contractor can maintain a suit for breach of contract, he must show that a valid contract exists.

The Regent Contracting Company, Inc. had been awarded a contract by the U. S. Navy for construction of a steam generator plant at the Naval Air Station in Oceana, Va. Regent, as required by the contract, furnished surety bonds from two surety companies to secure the performance of the work. Regent defaulted in completing the work and the Navy called upon the surety companies to arrange for completion of the work. The matter was referred to an attorney by the bonding companies.

The attorney requested bids from other contractors, including E. T. Zoby & Sons, who submitted a bid of $268,783 for completing the work. At the time, this appeared to be the low bid. The attorney intimated to Zoby that it was to be given the job and Zoby immediately proceeded to place a watchman in charge, as well as to enter into certain other preliminaries, all of which would have been required if Zoby had entered into a binding contract.

Zoby conceded that the bonding company's attorney had informed him the Navy would be the sole contracting party. It also appeared Navy did not authorize the bonding company's attorney to close any contract.

After Zoby had submitted its bid and after the bonding company's attorney had intimated to Zoby that he would get the job, another contractor submitted a bid which was lower than that submitted by Zoby. Zoby then offered to reduce his bid by $5,000. The bid as so reduced was still higher than the bid submitted by the other contractor and the attorney for the bonding company recommended to the Navy that the bid of Coe Construction Company, the low bidder, be accepted. The Navy proceeded accordingly.

Zoby then brought an action

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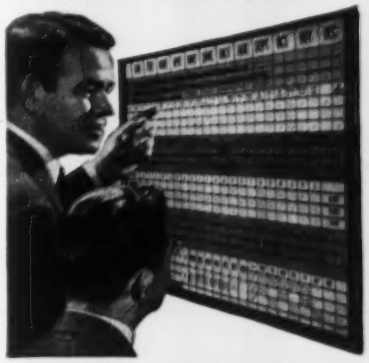

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against the bonding company to recover damages for breach of contract. The action was dismissed on the ground that no valid contract existed and under such circumstances Zoby could not maintain an action for breach of contract.[1] The court granted Zoby the right to serve an amended complaint in an action in tort predicated on the claim that but for the wrongful interference of the bonding company's attorney the Navy would have entered into the contract with Zoby.

(1) Zoby v. American Fidelity Company, 137 F. Supp. 38, U. S. District Court of Virginia, Dec. 28, 1955.

Joint Ventures Give Rise To Partnership Liability

A "joint venture" is an enterprise undertaken by several persons and, more particularly, an association of two or more persons to carry out a single business enterprise for profit, for which purpose they combine their property and services.

A right of mutual control over the subject matter of the enterprise or property engaged therein by persons undertaking it is essential.

"The liability of persons engaged in a joint venture is that of partners. Diddel v. American Surety Co., 1932, 94 Ind. App. 639, 161 N.E. 689."[1]

(1) Baker v. Billingsley, 132 N.E. 2d 273, Appellate Court of Indiana, Feb. 24, 1956.

Some of the Common Guides To Contract Interpretation

Where the parties to a contract express their intention without ambiguity, no room for judicial construction is left and no court may alter their agreement although the bargain is hard or unwise.[1]

A contract is to be interpreted so as to give means to every pertinent provision thereof and is not to be interpreted so as to render meaningless a very important provision of a written contract.[2]

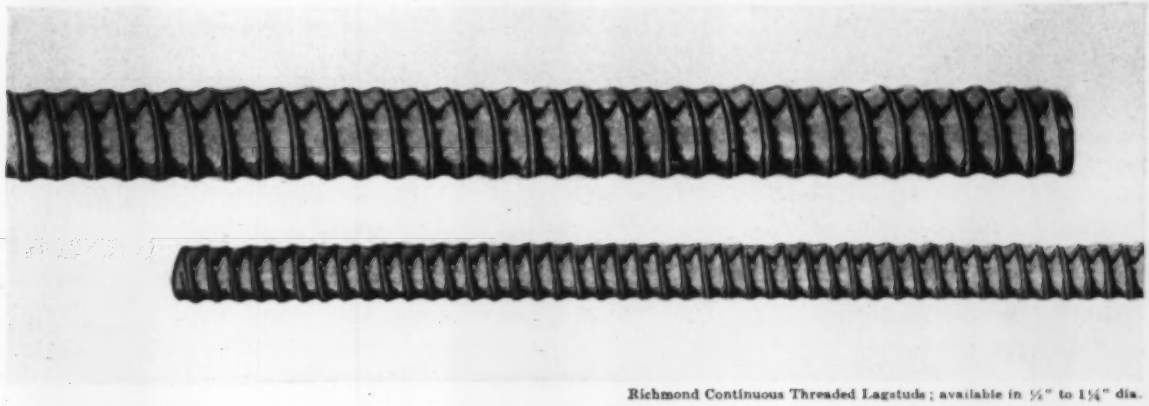
A contract must be interpreted so as to give meaning to every provision, and no provision should be left without force and effect. Where there is an inconsistency between a specific and a general provision of a contract, the specific provision controls.[3]

(1) Woodard v. Wagner, 131 N.E. 2d 694.

(2) Bakhshandeh v. American Cyanamid Co., 144 N.Y.S. 2d 148.

(3) Muzak Corp. v. Hotel Taft Corp., 133 N.E. 2d 688, 1 N.Y. 2d 42.

(These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.)

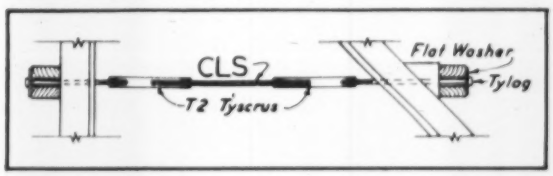


Richmond Continuous Threaded Lagstuds; available in ½" to 1¼" dia.

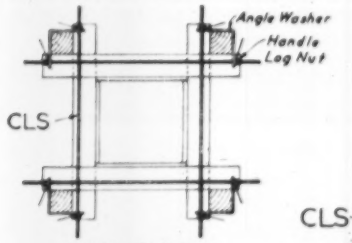
Concrete Form Tying Headaches Solved *on-the-spot* with Multi-Purpose Richmond Lagstuds

15% of concrete form tying work is "special"—hinging on conditions which develop as the job moves along. Before Richmond developed its Continuous Threaded Lagstud Rods, those special conditions were costly headaches. They always had meant lost man hours while "special" tys were built or "special" orders were filled.

With a supply of Richmond's Continuous Threaded Lagstuds on hand, now any job foreman can have the needed sizes quickly cut to length on the spot. They come in ½-inch, ¾-inch, 1-inch and 1¼-inch diameters, threaded to fit the contour of the coil (helix) of the Tyscru; in 5-ft. and 10-ft. lengths.

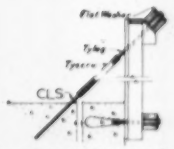


Lagstuds are among the most versatile members of the Richmond Tyscru family. Used alone, or in combination with other Tyscru products, they fill numerous other needs. Some of these uses are illustrated here.

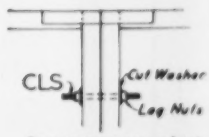


With Handle Lagnuts for exterior column or bulkhead tys

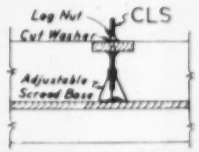
When furnished crimped, as anchorage to concrete where additional anchorage is needed in winter or below-strength concrete



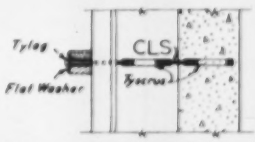
As anchorage for tying back forms to previous lift



As emergency panel ty to hold two form panels together

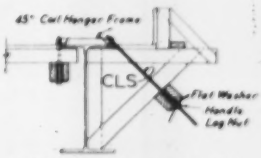


With Richmond's Adjustable Screed Base, to support a block form for a curb depression

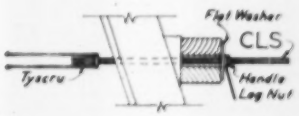


For tying together subsequent wall pours

Grouted into rock—as anchorage for wall-facing pours and brackets



With a 45° Hanger Frame-Ty on the fascia beam of a bridge



With Handle Lagnut and flat washer as an emergency Ty-lag substitute

The new Richmond Handbook describes the Richmond Adjustable Tyscru System and the entire Richmond line in detail. It is yours for the asking. To get it—or for help in solving a particular concreting problem—write: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Ave., Brooklyn 8, N.Y. or 315 So. Fourth St., Saint Joseph, Mo.

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- Hollow steel drive shaft plus famous McCulloch engine assure longer life and dependability of brushcutter.

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Because of their simplicity of design and rugged construction, Brownhoist buckets (such as the link-type left or the open type grab bucket above) withstand extremely severe abuse. Abrasion-resistant alloy steel nose plates protect against coarse materials.

Brownhoist clamshell buckets (right) in capacities from ½ cu. yd. to 3 cu. yds. are used with cranes for handling coal, ore, sludge, slag, rock or wet clay. They're engineered (as a result of over 80 years experience) to take full bites, year after year with trouble-free operation. Write today for catalog.

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Research

Plastic House

M. I. T. Test Home Goes Up in Disneyland

Research in the building industry has come to the Tomorrowland area of Disneyland, Anaheim, Calif. Here, a "house of tomorrow" will be built by the Monsanto Chemical Co.'s plastics division. The futuristic plastic home based on an 8 x 16-ft U-shaped molded unit will be erected to demonstrate and test the use of plastics in home construction. Site preparation has begun and construction is expected to start late this year. Completion is scheduled for early 1957.

Marvin Goody, Boston, Mass., created the novel design (ENR Nov. 17, p. 64) under the direction of Richard W. Hamilton, director of a plastics research project sponsored by the Monsanto Chemical Co. at Massachusetts Institute of Technology. Basis of the design is a molded module, 8 x 16 ft, which is bent to form ceiling, wall, and floor. In the simplest plan, eight molded modules are cantilevered in pairs from a 16-ft square central utility core to form four 16-ft square rooms. The central core houses baths, kitchen, laundry and heating facilities.

In the new home, a variety of floor plans, including twin cores, can be achieved by merely rearranging the standard 8 x 16-ft plastic components. Thus, the changing space needs of a family can be met by either adding or removing rooms. Since the floors of the rooms cantilever out over the ground, a minimum of site excavation is required.

Also incorporated in the plastic dwelling will be advanced methods of heating, ventilating, lighting, food preparing and plumbing. Movable and transparent walls and partitions will emphasize the increasing indoor-outdoor living plan.

Titanium-Scrap Salvage Method Reduces Cost

An experimental method of electrorefining titanium scrap promises to reduce the cost and increase the supply of the lightweight metal. So far, more than 70% of the titanium refined by the method at the Bureau of Mines' Experiment Station, in Boulder City, Nev., is premium grade. Some of it is purer than the best "pure" titanium produced commercially.

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Concrete Roads Aren't Retired

. . . they're kept at work for taxpayers

This is U.S. Highway 287 between Ft. Collins and Loveland, Colo.—a concrete road built in 1920. Now 36 years old, it's still on the job! Its long service is typical of hundreds of miles of concrete roads in Colorado. Here's the record:

Total mileage of concrete roads built in Colo.	545
Mileage still in service (exposed or serving as the heavy-duty, load-carrying base under a thin layer of resurfacing)	427
Mileage more than 20 years old and still in service (exposed or resurfaced)	332

Look at the record in another way: Of all the concrete roads ever built in Colorado 78.3 per cent is still serving. And more than three fourths of this durable paving is more than twenty years old.

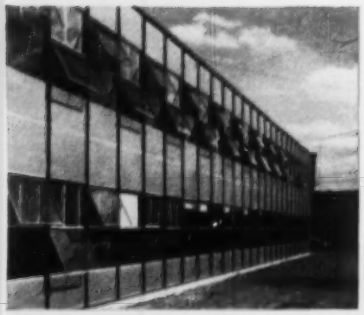
This performance is a record of low-annual-cost highway service to taxpayers in Colorado. The future record will be even better for *you now can build concrete roads to last 50 years and more.*

Besides great durability, concrete roads have much lower maintenance cost and provide greater safety —night or day, wet or dry.

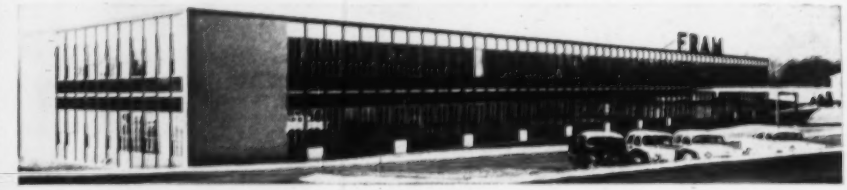
In the biggest highway construction job ever undertaken, taxpayers everywhere look to public officials and highway engineers for safe, better, longer-lasting, lower-annual-cost roads. As the record proves, concrete will fill the bill. With the federal government paying 90% of the cost of the Interstate Highway System, safe, durable, ***low-annual-cost*** concrete will be the logical choice.

PORTLAND CEMENT ASSOCIATION Dept. 9b-76, 33 West Grand Avenue, Chicago 10, Illinois

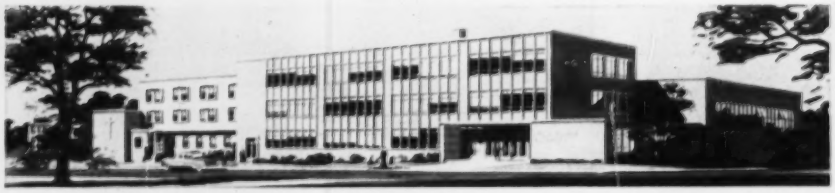
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work



Michigan Bell Telephone Company, Port Huron, Mich. Smith, Hinchman and Grylls, Inc., architects. E. J. Kahmann Co., contractor.



Fram Office Building, East Providence, Rhode Island. The Architects Collaborative, architects. Gilbane Building Co., contractors.



School and Convent, Church of the Holy Cross, Bronx, N. Y. York and Sawyer, architects. James King and Son, Inc., contractor.

Clemson Barracks, Clemson College, South Carolina. Lyles, Bissett, Carlisle and Wolff, architects. Daniel Construction Co., contractors.

Animal Science Building, University of Arkansas, Fayetteville, Ark. Ginocchio, Cromwell & Associates, architects. Harmon Construction Co., contractor.

Wherever you look

WHEREVER HE LOOKS, there's an exclusive feature on Republic "Inch-Marked"® E.M.T. that helps cut costs, makes installations easier. The "Inch-Marking" feature eliminates measuring. The "Guide-Line" helps prevent costly "wows." And inside knurling simplifies wire pulling. Protect your wiring circuits against fire, moisture and mechanical injury by specifying safe Republic ELECTRUNITE® E.M.T.

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United Airlines, Midway Airport, Chicago, Ill. Skidmore, Owings and Merrill, architects. Algot B. Larson, contractor.

REPUBLIC

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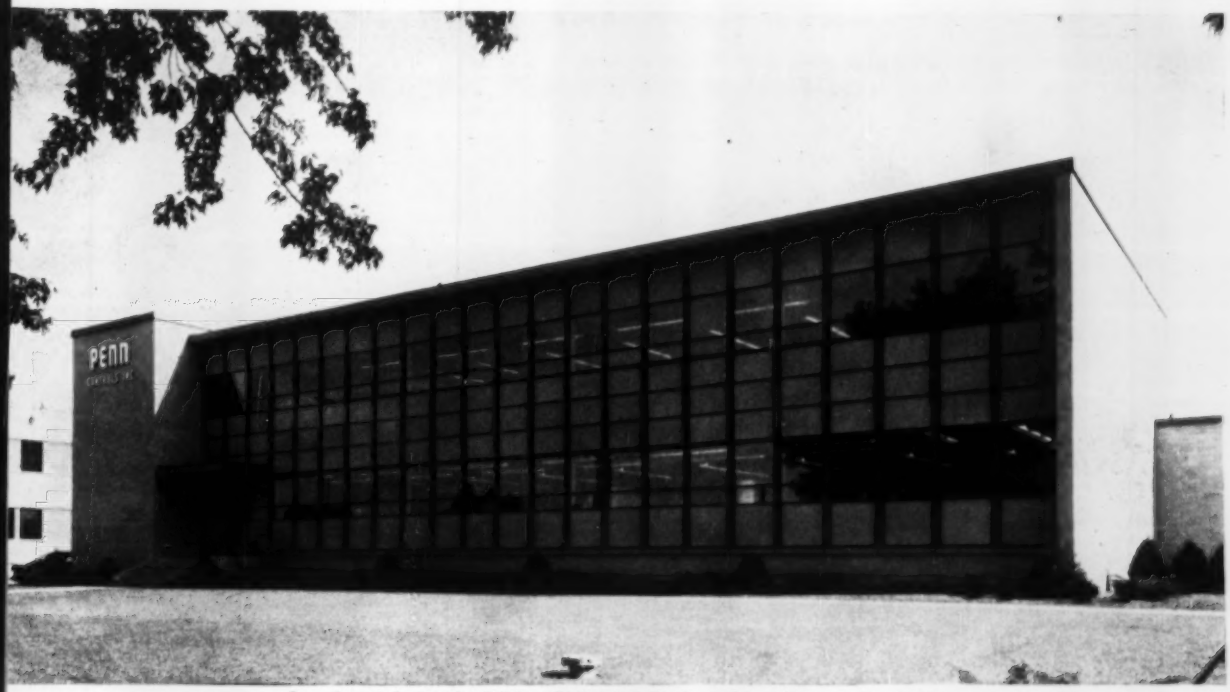

Penn Controls Engineering Building, Goshen, Ind. The Austin Co., architects and contractor.

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Truscon's Wall With a Window

Hundreds of new buildings have been designed around the Vision-Vent idea since this revolutionary new wall panel was introduced a scant thirty months ago. Hundreds more installations are on the boards now.

Why such enthusiastic acceptance? Here's a building method that gives you all the mass-production and installation economies of standard steel windows. Vision-Vent combines window and wall panel in one integrated unit which is easily installed as a unit. It encloses entire walls, can be erected from inside regardless of weather.

Each Vision-Vent unit is complete with fixed lights, awning-type ventilators, insulated steel panels. A Vision-Vent variation includes Truscon Double-Hung Steel Windows in place of awning-type ventilators.

Insulated panels are in colored porcelain enamel or in stainless steel. They have an insulating value equal to that of an ordinary masonry spandrel wall. They retain interior heat; they provide for efficient air conditioning. Minimum wall thickness—less than 1½"—provides extra square feet of floor space. Light weight of Vision-Vent walls is reflected in structural savings.

This exciting Truscon development is recommended for use in all types of single and multi-story buildings. Truscon window engineers will be glad to study your requirements and develop design details and costs. More specs in Sweet's, or send coupon for facts.

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and Steel Products

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3114 East 45th Street, Cleveland 27, Ohio

Please send me more information on:

- ☐ Truscon® Vision-Vent Windows
- ☐ Republic ELECTRUNITE® E.M.T.
- ☐ Republic Steel Lockers

Name_____ Title_____

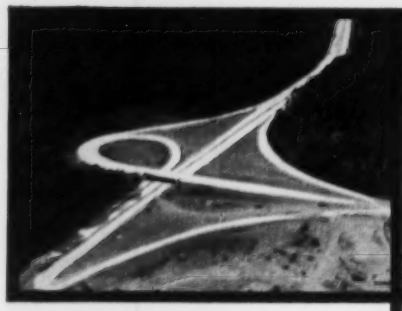
Company_____

Address_____

City_____ Zone____ State_____

K 9696

HOW TO ADVANCE HIGHWAY STARTING DATES UNDER THE FEDERAL PROGRAM IN YOUR STATE



CONSTRUCTION STARTING DATES for highways like this are advanced by AERO mapping methods.

RECONNAISSANCE PHOTOS from speeding AERO planes permit alternate route selections, minimizing costly field trips.

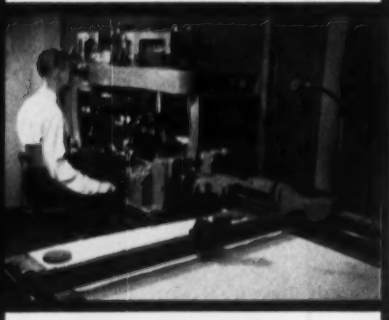
AERO TOPOGRAPHIC MAPS at 5 ft. contour interval are used for preliminary location and design.

1-FT. CONTOUR INTERVAL MAPS, compiled by precision AERO methods, are used for final location and design.

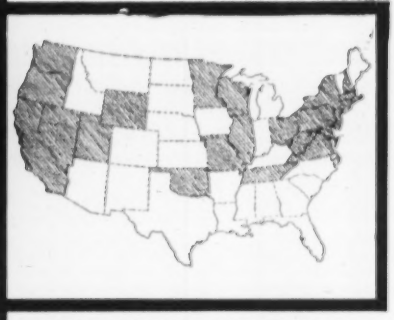
CONSERVE VALUABLE ENGINEERING MANPOWER. AERO handles the mapping job—leaves your own busy staff free for other work.

GROUND CONTROL DATA for AERO topographic maps are obtained by our trained field surveymen, using precision theodolites.

AERO HAS THE PLANES AND PILOTS. Our fleet of 35 aircraft is flown by men who've been with us an average of 12 years.



TRAINED, EXPERIENCED MAPPERS operate sensitive, accurate stereoplotting equipment, rush needed maps on around-the-clock schedule.



MAJOR HIGHWAY PROJECTS IN 23 STATES now are being mapped by AERO. It pays to call on AERO—the pioneer and leader.

Save time, money and manpower—let AERO do the mapping for the federal highway program in your state!

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Books

New Concepts in Building

ARCHITECTURAL ENGINEERING—494 pp. F. W. Dodge Corp., New York, N. Y. $11.50.

Over a period of a few years, a technical magazine publishes a great deal of useful information on current trends and techniques. Dodge's Architectural Record has capitalized on this by reprinting in this book many of the recent articles that appeared in its Architectural Engineering section.

As pointed out by Robert E. Fischer, associate editor, in the introduction, the book is neither a text nor a handbook, but "rather a compendium of current information on the more active areas of technical development and the ones that are likely to become active."

The book traces developments in thin-shell concrete, prestressed concrete and prefabrication. It calls attention to new concepts in heating and air conditioning. It offers suggestions for preventing moisture damage in buildings. And it discusses applications of lightweight concrete, plywood, glued timbers, glass and plastics.

Miscellaneous Notes

• **Crane safety** is treated in a 75-page pocket-size manual available from Allis-Chalmers Safety Services Section, Box 512, Milwaukee 1, Wis. Well illustrated with photos and drawings, the booklet was prepared to instruct Allis-Chalmers employees in crane operation and safe handling practices. It is divided into three sections: Rules; Hitching Equipment and Safe Practices; Safe Load Tables.

• **Shoulder stabilization**—A 16-page booklet on shoulder stabilization with calcium chloride is now available. The booklet gives specifications for stabilized aggregate shoulders and provides in detail, information on the materials and methods used in construction, reconstruction, and maintenance. It also covers measurement of, and payment for shoulder work. Write to Calcium Chloride Institute, 909 Ring Building, Washington 6, D. C.

New Engineering Books

RURAL WATER SUPPLY AND SANITATION—by Forrest B. Wright. Second Edition. 347 pp. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. $4.96.

ENGINEERING FLUID MECHANICS—by Dr. C. Jaeger. 548 pp. Blackie & Son Limited, Glasgow, Scotland, 60s.

ENGINEERING MECHANICS—by S. Timoshenko and D. H. Young. Fourth Edition. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. $7.50.

TANGENTS TO ONE TENTH MINUTE—Russell J. Boyce, 152 N. Main St., Wallingford, Conn. $12.00 per set; in quantities of 2 or more, $11.00 per set.

ENGINEERING AS A CAREER—by Ralph J. Smith. 365 pp. McGraw-Hill Book Co., 330 W. 42nd St., New York 36. $4.75.

ROUTE SURVEYS AND CONSTRUCTION—by Harry Rubey. 282 pp. Macmillan Co., 60 Fifth Ave., New York. $6.25.

THE ANALYSIS OF STRUCTURES—by N. J. Hoff. 493 pp. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. $9.50.

FUNDAMENTALS OF VIBRATION ANALYSIS—by N. Y. Myklestad. 260 pp. McGraw-Hill Book Co., 330 West 42nd St., New York 36. $6.50.

PEACEFUL USE OF ATOMIC ENERGY, VOL. 15: APPLICATIONS OF RADIO-ACTIVE ISOTOPES AND FISSION PRODUCTS IN RESEARCH AND INDUSTRY. 327 pp. Columbia University Press, 2960 Broadway, New York 27. $7.50.

FOUNDATIONS: DESIGN AND PRACTICE—by Elwyn E. Seelye. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. $16.00.

PEACEFUL USES OF ATOMIC ENERGY, VOL. 1: THE WORLD'S REQUIREMENTS FOR ENERGY; THE ROLE OF NUCLEAR ENERGY—479 pp. Columbia University Press, 2960 Broadway, New York 27. $8.00.

PEACEFUL USES OF ATOMIC ENERGY, VOL. 4: CROSS SECTIONS IMPORTANT TO REACTOR DESIGN. 357 pp. Columbia University Press, 2960 Broadway, New York 27. $7.50.

PEACEFUL USES OF ATOMIC ENERGY, VOL. 5: PHYSICS OF REACTOR DESIGN. 545 pp. Columbia University Press, 2960 Broadway, New York 27. $9.00.

PEACEFUL USES OF ATOMIC ENERGY, VOL. 8: PRODUCTION TECHNOLOGY OF THE MATERIALS USED FOR NUCLEAR ENERGY. 627 pp. Columbia University Press, 2960 Broadway, New York 27. $10.00.

PEACEFUL USES OF ATOMIC ENERGY, VOL. 7: NUCLEAR CHEMISTRY AND EFFECTS OF IRRADIATION. 691 pp. Columbia University Press, 2960 Broadway, New York 27. $10.00.

PEACEFUL USES OF ATOMIC ENERGY, VOL. 9: REACTOR TECHNOLOGY AND CHEMICAL PROCESSING. 771 pp. Columbia University Press, 2960 Broadway, New York 27. $10.00.

(*Books continued on page 108*)

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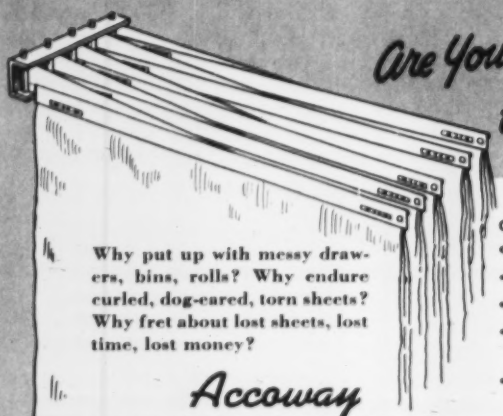

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. . . Books

Reports and Pamphlets

Effect of Trench Conditions and Arch Encasement on Load-Bearing Capacity of Vitrified Clay Pipe—by L. L. Abernethy. Bulletin No. 158. College of Engineering, Ohio State University, Columbus, Ohio. $3.00.

Plane Coordinate Intersection Tables (2½-Minute)—Special Publication No. 341. Superintendent of Documents, U.S. Government Printing Office, Washington 25. 40¢.

The Installation of Wood Block Finish Flooring by Adhesive Bonding—Building Research Advisory Board National Academy of Sciences National Research Council, Washington, D.C. $1.50.

Domestic Water Heater Tank Size Should be Based on Peak Load Delivery Capacity During 2-Hour Laundering Period—Building Research Advisory Board, National Academy of Sciences National Research Council, Washington, D. C. $1.50.

Selecting Lumber—Circular Series Index Number D7.0. Small Homes Council, University of Illinois, Urbana, Ill. Free until Sept. 1; after that date 10¢.

The Contribution of Irrigation and the Central Valley Project to the Economy of the Area and the Nation—Report by Bureau of Reclamation. Committee Print No. 11. U.S. Government Printing Office, Washington, D.C.

Influence of Geological Factors on the Engineering Properties of Sediments—by Karl Terzaghi. Harvard Soil Mechanics Series No. 50. Pierce Hall, Harvard University, Cambridge, Mass.

General Features of Algal Growth in Sewage Oxidation Ponds—Publication No. 13. State Printing Division, Documents Section, Sacramento 14, Calif. 78¢.

An Investigation of the Efficacy of Submarine Outfall Disposal of Sewage and Sludge—Publication No. 14. State Printing Division, Documents Section, Sacramento 14, Calif. $2.08.

Torsion, Bending, and Lateral Buckling of I-Beams—by Henrik Nylander. Bulletin No. 22. Division of Building Statics & Structural Engineering, Royal Institute of Technology, Stockholm, Sweden.

Parking—Legal, Financial, Administrative—Eno Foundation for Highway Traffic Control, Saugatuck, Conn.

Nylon cord tires reduced off-the-road tire failures...

NOW NYLON CUTS TRUCK TIRE COSTS, TOO

VIC ZEMAN
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Maribel, Wisconsin, reports:

"Nylon cord is the best improvement in tires since I came into the road contracting business twenty years ago. I wouldn't be without nylon cord tires for my trucks and off-the-road equipment. They last half again as long as other kinds. They stand up much better under the strain of heavy loads, steep grades, and rough road surfaces.

"With savings on tire replacements and delays, and with the extra recaps possible with nylon cord tires, I figure my long-run savings at 50% of standard tire costs."

PROVE TO YOURSELF that nylon cord truck tires give more mileage, more retreads—lowest cost per mile. Ask your dealer about nylon cord truck tires today. (Du Pont makes the tough nylon yarns, does not produce tires.)

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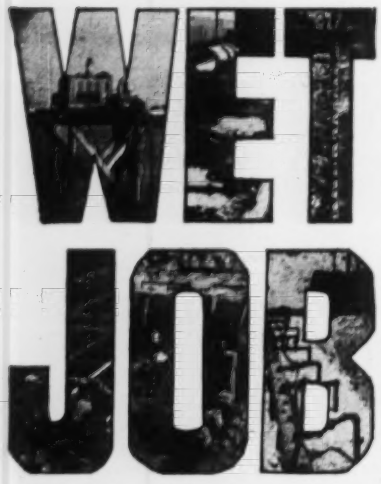
FOR UTMOST SAFETY . . . SUREST PROTECTION AGAINST TIRE TROUBLE

IF IT'S A



PLAY SAFE! ASK FOR A DEWATERING ANALYSIS BY

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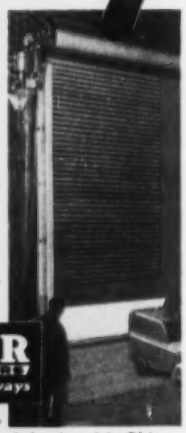
Kinnear Rolling Doors



Heavy galvanizing—*1.25 ounces of pure zinc per sq. ft. of metal, by ASTM standards*—gives Kinnear Steel Rolling Doors many extra years of carefree service life. And Kinnear's **special Paint Bond** prepares the zinc surfaces for quick, thorough, lasting paint adhesion. Insist on Kinnear Doors.

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Unit Prices

Heliport Paving in N. C. Costs $0.59 per sq ft

Hardstands, taxi- and runways that require only 8-in. portland cement concrete pavement enable the Corps of Engineers to build this army airbase at Simmons Field, Fort Bragg, North Carolina, for $475,337.

The paving price of $0.59 per sq ft includes clearing and grubbing, removal of old pavement, complete drainage and headwall.

Work includes a hardstand, 500 x 900 ft, with a 100 x 500-ft taxiway at one end and a 150 x 500-ft apron at the other, a helicopter runway of 40 x 450 ft and a runway for light planes, 3,400 ft long.

Wright Contracting Co., Columbus, Ga., took the contract with their low bid on the pavement that brought their total down to 10.8% below the engineers' estimate.

Minimum wage rates are $0.80 for laborers, $2.15 for pavers and $2.40 for equipment operators.

1C Wright Contr. Co., Inc., Columbus, Ga. $475,337
2 Ballenger Paving Co., Greenville, S. C. 499,858
4 Southern Roadbuilders, Inc., Augusta, Ga. . . . 546,014
EE Corps of Engineers, Wilmington, N. C. 532,787

Bids: 6-21-56 Items	Unit	Quantity	Unit Price 1C	Unit Price 2
Clear & Grubb	ac	63	$247.50	$170.00
Excav, unclassif	cy	49,000	0.43	0.40
Borrow, unclassif	cy	1,000	1.10	0.60
Asph pave, remov	sy	50,000	0.10	0.10
Bkfl, repl, unstable matl	cy	50	2.20	6.00
Sheath&brace, left tip	bf	200	0.20	0.10
PCC, 8", w thicken edges	sy	82,525	4.03	4.55
Tie-down anchors, type A	ea	600	0.92	0.75
type B	ea	63	9.20	5.00
Agg bse crse, stabil, 8"	sy	4,020	0.65	0.60
6"	sy	30,400	0.55	0.50
Surf crse, asph conc, incl bit matls	t	530	11.00	10.00
Surf treat, double bit	sy	30,420	0.50	0.40
Pipe, storm drain, 15"	lf	600	3.90	4.10
18"	lf	290	4.95	4.95
24"	lf	1,490	6.70	7.20
30"	lf	365	9.65	10.40
Catch basin No. 1, type B	ea	1	231.00	260.00
No. 9, type B	ea	1	302.50	250.00
No. 10, type B	ea	1	302.50	260.00
No. 14, type B	ea	1	302.50	240.00
No. 1A, type D	ea	1	588.50	325.00
No. 2A, type D	ea	1	588.50	325.00
No. 1B, type C	ea	1	357.50	300.00
Manhole, 0-6' deep	ea	2	198.00	180.00
8-10' deep	ea	1	264.00	260.00
12-14' deep	ea	1	385.00	310.00
Catch basin, convert to MH	ls	job	467.50	200.00
Stilling well	ls	job	330.00	335.00
Headwall	ls	job	522.50	450.00
Helicopter airport lighting	ls	job	36,025	30,000

Time to complete: 270 calendar days
No liquidated damages

Delaware Dam and Spillway

This $34,722 dam with reinforced concrete spillway, 45 ft long, and off-road bituminous surface-treated parking areas will restore Horseys Pond for boating and fishing. The project is located in Sussex County, Del.

The Bridge Division of the Delaware State Highway Department awarded the contract to James Julian, Inc., Elsmere, Del. Richard A. Haber is chief engineer.

The contract price is 5.2% above the engineer's estimate but 6.16% below the second low bid. It includes as miscellaneous items log barrier and wood shoulder curb, concrete sidewalk and corrugated metal downspouts.

Minimum wage rates are $1.50 for skilled and $1.00 for unskilled labor.

1C James Julian, Inc., Elsmere, Del $34,722
2 Edgell Construction Co., Inc., Dover, Del 37,000
3 George & Lynch, Inc., Wilmington, Del 40,251
EE Bridge Div., Del. State Highway Dept., Dover 33,000

Bids: 6-6-56 Items	Unit	Quantity	Unit Price 1C	Unit Price 2
Excavation	cy	1,400	$1.00	$1.50
for structures	cy	250	4.00	5.00
Borrow, selected	cy	4,000	1.10	1.50
Asphalt, RC 1	gal	280	0.17	0.20
RC 3	gal	280	0.17	0.20
Slag chips	t	11.2	7.50	8.00
Crushed chips	t	11.2	7.50	8.00
Struct, timber, creosoted	Mft	1.1	000.00	500.00
Masonry, cmt conc	cy	170	70.00	80.00
Waterproof, superficial	sy	220	1.00	1.00
Bar reinf, incl wire mesh	lb	15,000	0.14	0.20
Steel, struct, incl chain link fence	lb	8,200	0.46	0.40
Piles, timber sheet	Mft	4	500.00	300.00
steel sheet	lb	20,000	0.20	0.15
Rip rap	sy	220	12.00	8.00
Misc items	ls	job	367.20	4,000

Completion date: 11-15-56

Oregon Stone Revetments Cost $3.90 to $4.20/cu yd

Stones weighing 25 to 800 lb each for bank protection on South Santiam River, Linn County, Ore., feature this $70,369 contract for the Corps of Engineers, Portland. The contract went to Floyd Grahm Construction Co., Lebanon, Ore., on their bid, 0.36% above the engineer's estimate, but 3.25% below the second low bid.

The price includes clearing trees and debris from the three sites. Excavation must be done to the neat lines and grades. A tolerance of 0.3 ft above, but no tolerance below the lines is allowed on work above water surface, and a tolerance of 0.5 ft above or below the neat grade and slope lines on work below water.

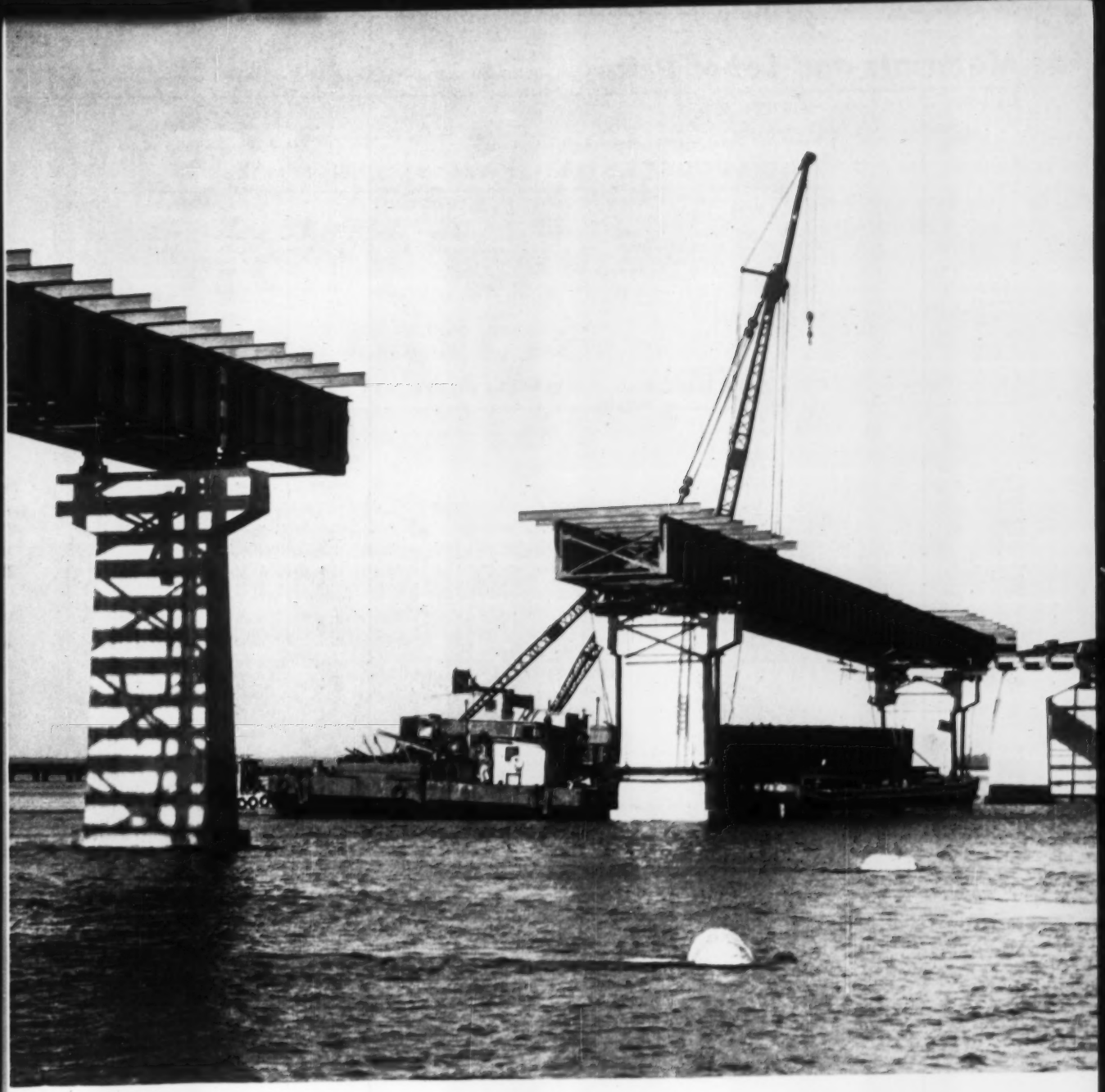
Minimum wage rates are $2.25 for general labor, $2.35 to $2.72 for equipment operators and $2.85 for assistant engineers.

The two low bidders are:

1C Floyd Grahm Const. Co., Lebanon, Oreg $70,369
2 Elte Const. Co., Boring, Oreg 72,729
EE Corps of Engineers, US Army, Portland, Oreg 70,117

Bids: 7-6-56 Items	Unit	Quantity	Unit Price 1C	Unit Price 2
Ketcham Location:				
Excavation	cy	3,680	$1.00	$1.00
Derrick stone, ip	cy	3,560	4.20	4.25
Eagle Location:				
Excavation	cy	5,440	1.00	0.90
Embkmt from gravel borrow	cy	1,200	1.00	1.25
Derrick stone, ip	cy	5,510	3.90	4.50
Pape Location:				
Excavation	cy	3,680	1.00	1.00
Embkmt from gravel borrow	cy	230	1.00	1.25
Derrick stone, ip	cy	4,690	4.20	4.00

ip in place
Time to complete: 60 calendar days
Liquidated damages: $50 per day



Wire Rope at Work—New Jersey's great Garden State Parkway has the incredible total of 282 bridges, and the photograph above shows the last of them nearing completion. It is the Great Egg Harbor Bay Bridge, an impressive span just west of Ocean City. The steelwork, more than a half-mile long, weighs some 2500 tons.

The picture was taken just after two 63-ton girders, completing a 180-ft span, had been erected. The derrick that did the hoisting was equipped with a 90-ft boom, a 43-ft mast, and Bethlehem Purple Strand wire rope. As always in lifts of this nature, a great responsibility rested upon the rope, but the sinewy Purple Strand was more than equal to the job. Taking the loads in stride, it made the dramatic lifts seem routine.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

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BETHLEHEM STEEL

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

* Sept. 20 — Wood Products, Glass, Explosives, Chemicals
* Sept. 27 — Clay Products, Lime, Plaster, Paint, Roofing, Wage Rates, Building Board, Lath, Insulation
* Oct. 4 — Cement, Aggregate, Ready-mixed Concrete, Asphalt

IRON AND STEEL PRODUCTS — PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. struc-tural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.00	$4.85	$5.075	$10.85		$101.50	$120.00	$6.35	$8.775	$6.025	.....
Chicago Area	5.00	4.85	5.075	10.85	$5.90	101.50	120.00	6.35	8.775	6.025	.....
Pittsburgh Area	5.00	4.85	5.075	10.85	5.90	101.50	120.00	6.35	8.775	6.025	$13.10
Buffalo Area	5.00	4.85	5.075	10.85	5.90	101.50	120.00	6.35	8.775	6.025	13.10
Cleveland	.....	.....	5.075	10.85	5.90	.....	.....	.....	.....	.....	13.10
Youngstown Area	.....	.....	5.075	.....	.....	.....	.....	.....	8.775	.....	.....
Geneva	5.00	4.85	5.175	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	5.70	.....	5.775	.....	6.50	.....	.....	.....	8.775	.....	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	6.35	8.775	6.025	.....

IRON AND STEEL PRODUCTS — F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot Rail steel	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	$9.50	.....	$8.90‡	$49.50	$54.00	
Baltimore	8.67	8.10j	.....	42.00	46.50	
Birmingham	8.05t	7.91t	.....	61.00p	67.00p	
Boston	8.90a	8.44	8.44	50.90	55.85	4 × 16 in., No. 8 & 10 wires — $3.66
Chicago	8.05	8.81gu	6.81gu	49.00‡	60.00‡	Joliet, Ill., Donora, Pa., Monessen, Pa.
Cincinnati	8.70ak	7.69re	.....	45.00mn	49.50mn	4 × 12 in., No. 8 & 12 wires — $3.43
Cleveland	8.38	6.79e	.....	43.50‡	48.00‡	Joliet, Ill., Donora, Pa., Monessen, Pa.
Dallas	9.15	8.25	8.25	49.00	52.00	6 × 6 in., No. 6 & 6 wires — $3.81
Denver	9.60	8.45e	.....	54.00n	60.00n	Joliet, Ill., Donora, Pa., Monessen, Pa.
Detroit	8.85	8.13	.....	56.00	63.00	
Kansas City	8.87a	8.73	.....	49.00	60.00	
Los Angeles	8.70fd	8.15	.....	54.50	60.50	
Minneapolis	8.255d	8.76b	8.76b	42.50	47.00	
Montreal	8.75¢/8.05-8.45A	7.75/8.95s	7.75/8.95	65.70A	70.20A	
New Orleans	.....	7.55sks	.....	45.50	50.00	
New York	8.71	7.93y**	7.93y**	47.50mo	54.50mo	
Philadelphia	8.04	7.14	.....	42.50‡	47.00‡	
Pittsburgh	7.43	6.57**	.....	42.50	47.00	
St. Louis	8.48e	7.90e	7.90e	57.00l	59.00l	
San Francisco	8.95	8.90f	.....	47.50	53.00	
Seattle	9.15	8.35e	.....	62.00nr	68.00nr	
Toronto	11.95*	7.60	7.60	56.00nq	59.00nq	

Quantity extras, per cwt.: under 100# + $1; 100-399#, + $.50; 400-999#, + $.30; 1000-1999#, + 1.00; 2000-4999#, base price; 5000-9999#, — 10¢; 10,000-19,999#, — 20¢; 20,000-29,999#, — 30¢; 30,000# and up, — 50¢.

EXTRAS, per cwt.—*Quantity: less than 700# + 50¢; 700-1499# + 25¢; 1500-2999# + 10¢. *Sizes: #7 + $2.20; #8 + $1.10; #9 + 80¢; #10, #11 + 55¢; #12 + 45¢; #13, #14, #15, #16, #17 + 40¢. *Bending: bars + 45¢ per cwt. (except in New York City, where surcharge is 80¢); spirals and hoops + 65¢ per cwt. (except in metropolitan areas where bending and placing charges are the same as for bars). *Engineering, details and placing charges: same as for bars (except in Chicago, where surcharge is 80¢ per cwt.). *Size: bars over 50# but not over $4,500, 20,000 lbs. or more, + 60¢ per cwt.; bars over $4,500 but not over $20,000, 20,000 lbs. or more, + 60¢ but not over $240; bars over $20,000, 5,000 lbs. or more, + 70¢ but not over $240; bars under 5 tons, + 50¢ but not over $70. *Design only: + 60¢.

*‡ Delivered *a 2000-9999#, fob city *b 10,000-19,999#, fob city *c 20 tons or over *d 10,000-19,999# *e Intermediate struct'l *f Incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j Intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more. *q 3 lb *r 2% off for cash *s 2,000-4,999# *t add 15¢ del. *u add 8.25¢ switch *v incl 15¢ del. *x add 5¢ switch *y add 30¢ del. *z add 10¢ del. *A American made. *C Canadian made. *" Aver. of Canadian & American. ** 4 tons

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEX[a]	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 12" Sew Cl. 1	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 PER 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTM C 14-41 12 in.	24 in.
Atlanta	123.5	$1.64	$2.68	$.55	$1.30	$4.95	$12.25	$225.00		$0.88m	$3.80m
Baltimore	132.9	1.64	2.68	.665	1.28	5.08g	12.71	187.80	$289.20	1.01	2.75m
Birmingham	119.0	1.64	2.68	.44	.81	3.55w	10.37w	260.00‡	440.00‡	1.90m	4.00
Boston	135.6	1.66	2.46	.788grf	1.502grf	6.211grf		203.40r	312.60r	1.54mg	3.65mg
Chicago	133.4	1.64	2.46	.93m	1.78m	7.52m	21.16m	220.00n	330.00n	1.30	4.00
Cincinnati	128.2	1.66	2.55	.665f	1.2825f	4.905f	12.505	240.00	370.00	.85m	3.25m
Cleveland	134.2	1.66	2.55	.567e	1.0935e	4.545f	11.787f	149.40m	231.60m	.85m	3.50m
Dallas	130.5	1.66	2.80	.439	.799	4.006	9.176	.....	.....	.63	1.86
Denver	140.1	1.73	2.80	.47n	.84n	3.73n		.....	.....	.74m	2.50m
Detroit	134.5	1.66	2.55	.85	1.60	6.45	17.50	240.00m	370.00m	.95	3.82
Kansas City	131.1	1.66	2.55	.61	1.105	4.54	12.75	250.00	480.00	.90	2.90
Los Angeles	140.2	1.73	2.46	.671	1.461	5.971	14.891	228.20l	348.90l	1.02	3.02l
Minneapolis	142.0	1.68	2.68	.83mo	1.50mo	6.50mo		.....	.....	1.76A	5.74A
Montreal				1.02u	1.80u	6.30u	12.00u			1.17A	3.11j
New Orleans	126.1	1.64	2.68	.51	.925	5.18		350.00p	550.00p	.75	2.50
New York	131.4	1.66	2.46	.99	1.88	7.37	19.06			1.50	3.00
Philadelphia	130.8	1.64	2.46	.65	1.25	4.95e	12.65e	300.00‡	350.00‡	1.60A	3.95A
Pittsburgh	135.3	1.66	2.46	.468m	.864m	3.86m	9.78m	152.00	244.00	1.05A	2.50A
St. Louis	129.6	1.64	2.55	.59	1.08	4.45	10.80	180.00l	380.00l	1.45kl	3.10kl
San Francisco	140.2	1.73	2.46	.74d	1.62d	6.50d	16.47d	320.00l	530.00l	1.05m	3.30m
Seattle	140.8	1.73	2.46	.666	1.266	6.34	17.90	205.00e		1.00g	3.10g
Toronto				.76	1.425	6.00		157.00	280.00	.87	3.05

*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote

Mill	2½ & 3 in. Butt Weld† Black %	2½ & 3 in. Butt Weld† Galv. %	3½ to 6 in. Lap Weld† Black %	3½ to 6 in. Lap Weld† Galv. %
Lorain, Ohio	23.00	4.75	13.50	+0.75d
Alhambra, Pa.	23.00	9.25	7.50	+11.25
Sparrows Pt., Md.	23.00	2.75	12.50ab	+6.25a
Benwood, W. Va.	23.00	4.75	13.50	+4.25a
Youngstown, O.	23.00	4.75	13.50	+2.75d
Indiana Harbor, Ind.	22.00	3.75	11.75d	+9.25d
			1.00ab	+12.75ab
Sharon, Pa.	23.00	4.75	13.50	+4.25a
Wheatland, Pa.	23.00	5.75	13.50	+2.75d
Etna, Pa.	23.00	9.25	11.75d	+9.25d
Fontana, Calif.	10.50b	+7.75b	1.00ab	+12.75ab

† Threaded and coupled. a 3½ to 4 in. b Continuous weld. 5 and 6 in. d 6 in.

*‡ Delivered. *a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 119.0; Burlington, N. J., 127.8. *b Extra strength ASTM C 200-44T *c 4-in., $113 *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76-41 *h reinforced, ASTM C 75-41 *i reinforced, ASTM C 76-37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13-40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60-1941 specs. used *v standard strength *w ss; add 20% for d.s.

*WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): Butt Weld ¼ in., 5½¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 78½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld — 1 in. black, + 65.54, galv., + 95.77; 1¼ in. black, + 65.54, galv. + 95.23, 1½ in. black, + 61.79 galv. + 91.22; Lap Weld — 2½ in. to 3 in. black + 67.95 galv. + 95.77; 4½ in. to 8 in. black + 64.74 galv. + 90.68 Add freight rates plus 3% transportation tax to get destination price.

In Current Salt Lake City Project

CLAY PIPE PROTECTS PUBLIC HEALTH

THE SALT LAKE CITY SUBURBAN SANITARY DISTRICT is expanding its sewerage program with bond-financed projects totalling $8,890,000 and requiring thousands of feet of Vitrified Clay Pipe. The men who design and build basic public health facilities like these rely on Clay Pipe for its unmatched dependability. Engineers planning the Salt Lake installation specified Clay Pipe for its "permanence and low cost."

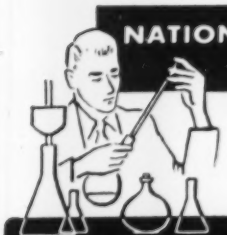
Clay Pipe is completely unaffected by strong detergents, sewer gases, acids generated by sewage, and industrial wastes. It's chemically inert, so it never wears out. Wherever public health is at stake, it pays to insist on the *longest-lasting* sewer pipe. Always specify Vitrified Clay Pipe, in the new longer, stronger sections, developed through the Clay Pipe Industry's new research program. Clay Pipe is backed by a *guarantee no other pipe matches.*

Officials directing the Salt Lake project include: District Trustees; A. F. Stewart, L. B. Gunderson, and R. P. Greenwood. *Consulting Engineers;* Caldwell, Richards & Sorenson.

Vitrified

CLAY PIPE

CLAY PIPE NEVER WEARS OUT!



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1820 N. Street, N.W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

Progress in Public Health - Through Clay Pipe Research

"Reinforcing rods were set and concrete poured almost the day after engineering details were available," cites Mr. M. Lapidus, architect for Miami Beach's luxurious new Eden Roc Hotel. In just 13 weeks all 14 floors of the 401-room structure were up . . . with reinforced concrete. The result: incalculable savings in time and extra hotel revenue. The design flexibility of the medium is shown "in the interesting form of the balconies, various projections and overhangs which could only have been achieved with reinforced concrete," further states Mr. Lapidus. On important projects from coast to coast, reinforced concrete is providing better structures for less money. It is inherently firesafe, and highly resistant to wind, shock, and quake. On your *next* job, design for reinforced concrete.

14 floors in 13 weeks with REINFORCED CONCRETE

"... provides incalculable savings in time and in extra hotel revenue"

SAYS MR. M. LAPIDUS, ARCHITECT for the elegant Eden Roc Hotel, Miami Beach, Florida

Eden Roc

Hotel, Miami Beach
Harry Mufson, President

Morris Lapidus
New York — Miami Beach
Architect

H. J. Ross & Associates
Miami
Consulting & Structural Engineers

Taylor Construction Co.
Miami
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J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

Mass., Randolph—BA 9/20—Town of Randolph, Bd. Selectmen, S. Main St., trunk sewers Contr. No. 1, Webster St. to Railroad. $451,000. Plans deposit $5. Duffill Assoc., Inc., 914 Beacon St., Boston, consult. engr. CD 8/20.

† Mass., Charlestown—RAILWAY TRACK RECONDITION—BA 9/25—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston 10, Mass.: recondition, marine railway track and chains, Marine Railway No. 11, Boston Naval Shipyard, NBy-5919, Spec. 5919/56. Plans deposit $10. CD 8/21.

BUILDINGS—BA

▲ Conn., West Hartford—SCHOOL—BA 10/2—Town, Edmund H. Thorne, supt. Schools, 51 Memorial Rd., elementary school, Richland Lane. $1,250,000. Jeter & Cook, 36 Pearl St., Hartford, archts. Extended date. CD 8/21.

BUILDINGS—SLC

Conn., Westport—SHOPPING CENTER—B. V. Brooks, Box 401, soon lets contract 50,000 sq. ft. Compo Shopping Center, Post Rd., and 8,000 sq. ft. offices. Approx. $500,000. Sternbach & Rheaume, 366 Atlantic St., Stamford, archts.

HEAVY CONSTRUCTION—LB & CA

† Bureau P. Rds., Dpt. Commerce, c/o Acadian National Park Office, Bar Harbor, Me., rejected bids Aug. 10, grading, drainage, b. conc. paving 2.252 mi. East Side Loop Rd., Acadia National Park, vicinity of Bar Harbor, Proj. 4A2, MAINE, LB $525,229. CD 8/17, under LB.

▲ Coker Constr. Co., 430 "WOW" Bldg., Omaha, Neb., CA, $3,287,277, est. $3,600,000. Proj. 243, Malden Tunnel, Section A, Spot "Pond Brook Flood Control Proj., Malden, MASSACHUSETTS. Commonwealth of Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston, Mass. Bids Aug. 16. CD 8/20, under LB.

Donoghue & Bartels, Inc., 26 Garden St., Arlington, Mass., LB $136,247, est. $140,000. flood damage repairs, Thompson's Pond Dam, Spencer, MASSACHUSETTS, Commonwealth of Mass., Dpt. Natural Resources, Div. Forest & Parks, 15 Ashburton Pl., Boston, Mass. Bids Aug. 23. CD 8/8.

Frank Joy, Inc., South Orleans Rd., Orleans, Mass., LB $127,777, est. $120,000. Proj. 152-56, tent camp, Nickerson State Park, Brewster, MASSACHUSETTS, Commonwealth of Mass., Dpt. Natural Resources, 16 Ashburton Pl., Boston, Mass. Bids Aug. 23. CD 8/6.

John W. Rhodes & Sons, 572 Main St., Wareham, Mass., LB $105,900. bath house and toll booth, Sandwich, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids Aug. 21. CD 8/2.

▲† B. Perini & Sons, Inc., 73 Montwait Ave., Framingham, Mass., CA $1,557,400, est. $1,637,543; constr. Buffumville Dam, Little River, Charlton, CIV ENG-19-016-57-2, MASSACHUSETTS. U. S. Eng., 160 Causeway St., Boston, Mass.—Bids Aug. 17. CD 8/21, under LB.

CONNECTICUT—State Hy. Dpt., State Office Bldg., Hartford,

Conn.—Palmer Tarrinelli Constr. Co., 144 Island Brook Ave., Bridgeport, Conn., LB $488,859. (3 bidders) Proj. 151-63, three bridges over Naugatuck River at S. Leonard St., Bristol Rd. and Eagle St., Waterbury.

Conn.: DeFonce Constr. Co. Inc., 110 Colonial Ave., Bridgeport, Conn., LB $133,953. (4 bidders) Proj. 34-97, three bridges over Pond Brook, Wataba Brook and Mary Brook, Danbury, New Fairfield and Ridgefield. Bids Aug. 27. CD 8/17.

Cosgrove Constr. Co., Inc., North Main St., Branford, Conn., LB $401,202. sanitary sewers 5 mi. for 2.3 of Allingtown area, ALLINGTOWN, CONN. Town of West Haven, Town Hall, West Haven, Conn. Bids Aug. 24. CD 8/22, under LB.

BUILDINGS—LB & CA

Fr. Grande & Son, 175 Maplewood St., Malden, Mass., LB $740,286, est. $750,000. ELEMENTARY SCHOOL, Bedford St., BURLINGTON, MASS. Town, Wildwood Elementary School Bldg. Comn., School Dpt., Burlington High School, Burlington, Mass. Bids Aug. 27. CD 8/2.

▲ Daniel O'Connell's Sons, Inc., 480 Hampden St., Holyoke, Mass., LB $5,495,243. Proj. 50-457, HOSPITAL, BOILER HOUSE, LAUNDRY, Brightside Institute Property, HOLYOKE, MASS. Providence Hospital, 679 Dwight St., Holyoke, Mass. Bids Aug. 29. CD 8/15.

A. F. Smiley Constr. Co., 115 Trenton St., Pawtucket, R. I., CA, $400,000. SHOPPING CENTER, Aiken St., LOWELL, MASS. Stop & Shop Inc., 393 "O" St., South Boston, Mass. Bids Aug. 17. CD 8/15.

Francis Harvey & Sons, Inc., 141 Dewey St., Worcester, Mass., CA, $450,000. NURSES' HOME, Windham St., WORCESTER, MASS. St. Vincent's Hospital, Windham St., Worcester, Mass. Bids Aug. 20. CD 7/26.

John Zandonella, 70 Chase St., Bridgeport, Conn., CA $537,000. COMMUNITY BLDG., Park Ave. and Benson St., BRIDGEPORT, CONN. Congregation B'Nai Israel, c/o Leonard Askeim, archt., 211 State St., Bridgeport, Conn. Bids Aug. 23. CD 8/22.

Harlaco, Inc., 201 Front St., New Haven, Conn., CA, $350,000. 2 story BANK and OFFICE, 390 Whalley Ave., NEW HAVEN, CONN. Kenneth S. Keenan, 390 Whalley Ave., New Haven, Conn. Bids July 14, awarded Aug. 24. CD 7/10.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

New Jersey—BA 9/13—N. J. Turnpike Auth. Administration Bldg., New Brunswick, Contract GR-35, sewage treatment plant addns. at Service Area 3-X, Delaware Twp., Camden Co. Plans deposit $10.

New Jersey—BA On Or About 9/18—U. S. Eng., 111 E. 16 St., New York 3, N. Y., dredging to depth of 12 ft. below mean low water, involving removal of approx. 177,800 cu. yd.; place measurement of all material except ledge rock from Shoal Harbor and Compton Creek, in Monmouth Co., CIVENG-30-075-57-23.

BUILDINGS—BA

Pa., Midland—GYMNASIUM—BA 9/17—School Dist., 1 story, bsmt., 140x140 ft., brick, tile, steel gymnasium. $550,000. Robert F. Beatty, East Liverpool, O., archt. CD 3/17/55.

HEAVY CONSTRUCTION—LB & CA

Nassau Co., Old County Court House, Mineola, N. Y. received no bids Aug. 28, Contr. 1009-E, improv. Paper Mill Pond, Plandome-Port Washington Drain, Incorporated Village of Plandome Manor, Town of North Hempstead, MINEOLA, N. Y. CD 8/21.

Curro Constr. Co., Union Commerce Bldg., Cleveland 14, O., LB $762,391. (3 bidders) 9,500 ft. storm sewer for West Side Drainage Proj., TONAWANDA, N. Y. Town, City Hall, Tonawanda, N. Y. Nussbaumer, Clarke & Velzy, 327 Franklin St., Buffalo 2, N. Y., engrs. Bids Aug. 20. CD 4/4/47.

Kelly Paving & Constr. Co., 1347 E. High St., Phila. 18, Pa., CA $63,664. Bid No. 2641R, constr. water mains Maple Ave. from Bustleton to Trevose Aves.; Bustleton Ave. from Maple to Philmont Aves., PHILA., Pa. Grand total $219,347. City, Dpt. Procurement, City Hall Annex, Phila. Pa. Bids Aug. 21. CD 8/6.

M. & J. B. McHugh, 842 N. Markoe St., Phila. 39, Pa., CA $116,320. Bid 2661, water mains, Glent St. from Academy to Lavender St., etc. (Phila., Pa.).

General Asphalt Paving Co. of Phila., 6851 Rising Sun Ave., Phila. 11, Pa., CA $59,363. Bid No. 2662, water mains Frankford Ave. from Grant to Morrell Aves. (Phila., Pa.).

General Asphalt Paving Co. of Phila., 6851 Rising Sun Ave., Phila. 11, Pa., CA $124,813. Bid No. 3862, grading, paving Convention Ave. from South to 34 Sts. PHILA., PA. City, Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Aug. 16. CD 8/3.

Mack Paving & Constr. Co., "C" and Luzerne Sts., Phila. 24, Pa., CA $121,425. Bid No. 3857, asph. resurf., Olney Ave. from Rising Sun Ave. to Broad St. (Phila., Pa.).

▲ Chas. W. Williams & Assoc., 2210 Maryland Ave., Baltimore 18, Md., CA $2,389,036. 1st sect., Jones Falls Expressway storm water conduits, BALTIMORE, MD. City, Bureau Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids Aug. 8. CD 8/13, under LB.

Marbro Constr. Co., RFD 1, Box 276, College Park, Md., LB $100,944. (10 bidders) Contr. 1734-S, sewers in various streets, roads, avenues, etc., Seabrook, Sherman Park and Seabrook Acres, Seabrook, HYATTSVILLE, MD. Wash. Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Aug. 27.

Rogers & McGrath, 1221 Kenilworth Ave., N. E., Wash., D. C., LB $184,800. (4 bidders) Contr. 1795-S, Bald Hill Sewage Pumping Station, Lanham, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Aug. 27. CD 8/16.

BUILDINGS—LB & CA

▲ Caristo Constr. Corp., 26 Court St., Brooklyn 2, N. Y., LB $3,160,000. (7 bidders) general constr. JUNIOR HIGH SCHOOL 45, Manhattan, 120 St. between 1st and 2nd Aves., NEW YORK, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Aug. 28. CD 7/31.

John G. Hellman Co., Inc., 507 E. 76 St., New York 21, N. Y., LB $378,745. (14 bidders) electric (New York, N. Y.).

Daniel J. Rice, Inc., 41-50 38 St., Long Island, City, N. Y., LB $420,700. (4 bidders) heating (New York, N. Y.).

▲ Foster Wheeler Corp., 165 Broadway, New York, N. Y., CA $3,250,000. design and construct separate oil-fired SUPERHEATER for Indian Point nuclear electric station, in village of Buchanan, PEEKSKILL, N. Y. Consolidated Edison Co. of New York, Inc., 4 Irving Pl., New York 3, N. Y. CD 5/9/55, under CA.

Herbert Berg Constr. Corp., 90 North Rd., Tuckahoe, N. Y., CA $344,000. RESEARCH LABORATORY, Midland Ave. near Yonkers Ave., YONKERS, N. Y. Sherman Fairchild & Assoc., Inc., 30 Rockefeller Plaza, New York 20, N. Y. Fordyce & Hamby, 70 W. 40 St., New York 36, N. Y., archts.

▲ Beir & Higgins, Inc., 81 W. Allendale Rd., Allendale, N. J. Owner Builds. $2,250,000. 50 HOUSES at Briar Hill, Arcadia Rd., ALLENDALE, N. J. Harvey P. Clarkson, 308 N. Barry Ave., Mamaroneck, N. Y., archt.

▲ Preakness Homes Co., Hamburg Turnpike, River Vale, N. J., Owner Builds. $1,200,000. 80 HOMES, 57 acre tract, Poplar St., BLOOMINGDALE, N. J. James De Rose, 290 E. 6 St., Clifton, N. J., archt.

Wm. Statler & Andrew Cook, Main St., Bloomingdale, N. J. Owner Builds. $700,000. 43 HOMES, 18 acre tract between Union and Van Dam Aves., BLOOMINGDALE, N. J.

▲ John Zeltlhoffer, 47 Second St., Pequannock, N. J., Owner Builds. $1,525,000. 100 HOMES, off Union Ave., 38-acre tract, to be known as "Birch Knoll", BLOOMINGDALE, N. J. Emilio J. Ciccone, 478 McBride Ave., Paterson, N. J., archt.

Joseph Kurut, 8 Avondale Ave., Clifton, N. J. Owner Builds. $400,000. 26 HOUSES, Sands Rd., CALDWELL, N. J.

Wigton Abbott Constr. Co., 1225 South Ave., Plainfield, N. J., CA $223,000. design and construct, WAREHOUSE renovation, Rte. 3, Allwood Section, CLIFTON, N. J. Grace Chemical Research Laboratory, 254 W. 31 St., New York, N. Y.

Fucetola Brothers, 25 River Road, North Arlington, N. J., CA $200,000. 1 story, steel, concrete, 15,000 sq. ft. WAREHOUSE, 800 Humboldt Ave. between

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**
PROPOSED WORK	
Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily

North Ave. and Division St., ELIZABETH, N. J. Reliance Electric & Eng. Co., 1088 Ivanhoe St., Cleveland, O.

▲ **Sam Schafran Associates**, E. Audubon Ave., west of Hudson Blvd., Jersey City, N. J., Owner Builds, $3,000,000. 169 HOUSES, Audubon Ave., JERSEY CITY, N. J. Erwin Gerber, 111 Commerce St., Newark, N. J., archt.

Monmouth Gardens, Keyport and New Monmouth Rds., Middletown, N. J. Owner Builds. $550,000. 30 HOUSES, "Aristocrat Homes", MIDDLETOWN, N. J. Isadore Naftali, 312 High St., Newark 2, N. J., archt.

▲ **M. J. Rubino**, 103 Broadway, Fairlawn, N. J. Owner Builds. $1,000,000. HOUSING DEVELOPMENT, to be known as "Woodland Acres", Sussex Ave., Randolph Twp., 4 mi. west of MORRISTOWN, N. J.

▲ **Badger Mfg. Co.**, 230 Bent St., Cambridge, Mass. CA Est. $2,000,000. REFINING PLANT, ALIQUIPPA, PA. Jones & Laughlin Steel Corp., 3 Gateway Center, Pittsburgh, Pa. CD 7/23.

Vertex Building Corp., c/o John Odeo, 37 Hope St., Lodi, N. J., Owner Builds, $550,000. 30 HOMES, Mansfield Rd., PARK RIDGE, N. J. Leonard C. Feinan, 320 Lincoln Ave., Hasbrouck Heights, N. J., archt.

▲ **Garden State Associates**, River Vale Rd., River Vale, N. J., Owner Builds, $1,250,000. 36 HOMES, Taylor Ave., known as Woodland Hills, RIVER VALE, N. J. Maniscalco & Hecker, 909 Main St., Hackensack, N. J., archts.

Collins Constr. Co., 3160 Fairfax Trafficway, Kansas City, Mo., CA $750,000. 1 story brick, block, steel REPAIR SHOP and OFFICE, PITTSBURGH, PA. Fruehauf Trailer Co., 10940 Harper St., Detroit, Mich.

▲ **Dashiells & Son**, Salisbury, Md., CA, $1,406,980, base bid incl. alternates, JUNIOR-SENIOR HIGH SCHOOL, Chesapeake City, ELKTON, MD. Cecil Co. Bd. Educ., Elkton, Md. Bids Aug. 8, awarded Aug. 29. CD 8/13, under LB.

W. M. Chappell, Inc., 1346 Good Hope Rd. S.E., Wash., D. C., LB $975,700. Anacostia SENIOR HIGH SCHOOL addn., 16 and "R" Sts. S.E., WASH., D. C. D. C. Govt., Dir. Bldg. & Grounds, 499 Pa. Ave. N.W., Wash., D. C. Bids Aug. 24. CD 8/17.

SOUTH

HEAVY CONSTRUCTION—BA

† **Ga., Dawsonville**—BA 10/1—Lockheed Aircraft Corp., Georgia Div., 86 S. Cobb Dr., Marietta, water supply, distr. sys., sewage disposal, local roads, walks, and parking areas, storm drains and exterior electrical work for Industrial Development for Lockheed Aircraft Corp., Air Force Plant No. 6, Air Force Project No. 1146-16. Plans deposit $25. Vitro Engineering Div., 225 Fourth Ave., New York 3, N. Y., archt. CD 5/2.

▲† **Ga., Dawsonville**—BA 10/15—Lockheed Aircraft Corp., Georgia Div., 86 S. Cobb Dr., Marietta, general nuclear laboratory for industrial development for Lockheed Aircraft Corp., Air Force Plant No. 6, Air Force Proj. No. 1146-7. Plans deposit $25. Vitro Engineering Div., 225 Fourth Ave., New York 3, N. Y., archt. CD 4/12.

Va., Richmond—BA 10/16—At office J. W. Huffman, dir. Purchases & General Services, Mosque Bldg., Laurel and Main Sts., Div. II, main pumping station, general, incl. constr. pumping station, junction chamber, regulator chamber, incoming sewers and outside piping and all appurtenant work, except that included under Div. III, Div III, main pumping station, pumping equip., incl furnish, testing and delivering of sewage pumps, incl. motors, engines, drives and appurtenances at site northwest and adjacent to Sewage Treatment Plant, near southwest bank of James River at Rockett's Wharf, northeast of U. S. Naval Diesel School. Plans deposit $5. Greeley & Hansen, 220 S. State St., Chicago 4, Ill., engrs., adv. ENR 9/13. CD 3/31/54.

BUILDINGS—BA

▲ **Ky., Lexington**—APARTMENTS—BA 9/25—Commonwealth of Ky., Div. Purchases, Frankfort, Shawneetown Apartments, University of Ky., 6 apartment bldgs. (186-student family units) 2-3 story, brick, concrete constr. $1,806,000. Plans deposit $50. Brock & Johnson, 159 Barr St., archts. Porter J. White, 915 S. Lime St., structural engrs. Staggs & Fisher, 170 Walnut St., mech. engr. CD 4/19.

Ga., Cartersville—SCHOOL—BA 9/27—State School Bldg. Auth., 244 Washington St. S.W., Atlanta, Pine Log Elementary and High School addn. in Bartow Co. Plans deposit $50. Glass-Montgomery-Turner & Assocs., 402 E. Second Ave., Rome, archts.

Ga., Dalton—SCHOOLS—BA 9/27—State School Bldg. Auth., 244 Washington St. S.W., Atlanta, shop addn. Valley Point High School and shop addn. Westside High School, Whitfield Co. Plans deposit $50. Biancullo & Palm, 510 Volunteer State Life Bldg., Chattanooga, Tenn., archts.

Ga., Louisville—SCHOOLS—BA 10/2—State School Bldg. Auth., 244 Washington St. S.W., Atlanta, Jefferson County Training School (colored), Wrens High School (white) addn., Louisville Academy (white) addn., Bartow Elementary School (colored), Wadley Elementary School (colored), Wrens Elementary School (colored), Wadley High & Elementary Schools (white) addns., Stapleton Elementary School addn., Avera Elementary School (white) addn., Bartow Elementary School (white), Matthews Elementary School (white) addn., Pine Hill elementary School (colored) addn. in Jefferson County. Plans deposit $50. Kubike & Wade, 16 Campbell Bldgs., Augusta, archts.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Richmond-Petersburg Turnpike Auth., 1015 E. Main St., Richmond,

T. A. Loving & Co., P.O. Box 1291, Goldsboro, N. C. LB $1,150,870 (4 bidders) Contr. B-2-SUB, Sect. B, substructure-North for James River Bridge, City of Richmond. Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York, N. Y., engrs. Bids Aug. 28. CD 8/15.

WEST VIRGINIA—State Road Comn., Charleston, Zone 5,

W. Va.—**V. N. Green & Co., Inc.**, 1640 4 Ave., Charleston, W. Va., LB $508,583. traffic bound, base cr., b. conc. bottom and wearing courses 3.239 mi. Proj. F 198 (8), Upshur Co.;

W. Va.—**Road Materials, Inc.**, Bluefield, W. Va., LB $396,262. traffic bound, base cr., b. conc. bottom and wearing courses, Proj. S-652 (1), Princeton, Mercer Co. Bids Aug. 28. CD 8/30.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

N. C.—**Kitchin Constr. Co.**, Box 3277, Fayetteville, N. C., LB $94,011, est. $50,000-$75,000, structures on 9.88 mi. US 264, Proj. 1032, SF-204 (3), S-881 (1), BS 2-6-15-127, Beaufort Co.;

N. C.—**Ballenger Paving Co.**, Box 927, Greenville, S. C. LB $143,103, est. $125,000-$150,000, structures on 4.9 mi. Proj. 1-503, S-821 (1), Hertford and Northampton Counties;

N. C.—**McMeekin Constr. Co.**, Cheraw, S. C., LB $852,168, est. $400,000-$500,000, bridge, approaches, 0.52 mi. US 70 relocation, Proj. 2005, SF-64 (5), Carteret Co.;

N. C.—**Columbus Contrs., Inc.**, Whiteville, N. C., LB $76,982, est. $75,000-$100,000, structures 7.6 mi. Proj. 3596, S-868 (2), New Hanover Co.;

N. C.—**Structures, Inc.**, Box 1184, Greenville, S. C. LB $180,352, est. $200,000-$225,000, structures 5.07 mi. NC 16 (relocation), Proj. No. 6562, F-444 (9), Mecklenburg Co.;

N. C.—**Dickerson, Inc.**, Monroe, N. C., LB $226,090, est. $225,000-$250,000, structures on 1.28 mi. Proj. 6965, Union Co.;

N. C.—**John H. Brinkley**, Thomasville, N. C., LB $280,420, est. $250,000-$300,000, structures on 7.07 mi. Proj. 7123, S-803 (2), Ashe Co. Bids Aug. 28. CD 8/21 and 8/15.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

N. C.—**J. S. Hill Corp.**, Washington, N. C., LB $255,773, est. $250,000-$300,000 CABC, bit. surf. tr. 9.88 mi. US 264, Proj. No. 1032, SF-204 (3), S-881 (1), BS 2-6-15-127, Beaufort Co.;

N. C.—**R. W. Long**, Tarboro, N. C., LB $153,531, est. $150,000-$175,000, subgrade reinforcement, CABC and bit. surf. tr. 7.62 mi. NC 350, Proj. No. 1479, S-820 (1), Bertie and Hertford Counties;

N. C.—**S. T. Wooten Constr. Co., Inc.**, Stantonsburg, N. C. LB $100,270, est. $75,000-$100,000, STBC, bit. surf. tr. 4.9 mi. Proj. 1-503, S-821 (1), Hertford and Northampton Counties; LB $119,623, est. $125,000-$150,000, grading 5.42 mi. US 301, Proj. No. 2963, F-209 (13), Wilson Co.;

N. C.—**Wannamaker & Wells, Inc.**, Box 542, Orangeburg, S. C., LB $701,689, est. $400,000-$500,000, grading, structure 0.642 mi. US 701, Proj. No. 3083, SF-244 (6), Bladen Co.;

N. C.—**Dickerson, Inc.**, Monroe, N. C., LB $199,563, est. $200,000-$225,000, grading 7.6 mi. Proj. 3596, S-868 (2), New Hanover Co.; LB $184,055, est. $175,000-$200,000, grading 1.28 mi. Proj. 6965, Union Co.;

N. C.—**Blankenship Bros.**, Box 3686, Charlotte, N. C. LB $184,269, est. $225,000-$250,000, grading 5.07 mi. NC 16 (relocation). Proj. 6562, F-444 (9), Mecklenburg Co.;

N. C.—**W. E. Graham & Sons**, Cleveland, N. C., LB $695,208, est. $400,000-$500,000, CABC, bit. surf. tr. 7.07 mi. Proj. 7123, S-803 (2), Ashe Co.;

N. C.—**Blythe Bros. Co.**, Box 989, Charlotte, N. C., LB $198,623, est. $200,000-$225,000, SABC, sand asph. base and surf. 3.57 mi. Proj. 7-208, S-888 (1), BS 10-7-67-26, Mecklenburg Co.; LB $287,407, est. $300,000-$400,000, SABC, bit. surf. tr. and structures 6.43 mi. NC 277, Proj. 6338, S-884 (2), Gaston Co.;

N. C.—**Lambeth Constr. Co.**, Box 1102, Greensboro, N. C. LB $187,108, est. $200,000-$225,000, SABC bit. surf. tr. and structures 2.01 mi. Proj. No. 5-510, US-841 (1), S-841 (2), Guilford Co. Bids Aug. 28. CD 8/21.

SOUTH CAROLINA—State Hy. Dpt., Columbia,

Suber & Co., Inc., P. O. Box 338, Whitmire, S. C., CA $554,190. macad. base course, b. conc. surf. for wid'n. and constr. 4-lane hy. 4.078 mi. US Rte. 25, S. C. Docket No. 23.394, F.A. Proj. F 253 (7), Parts 1 and 2, Greenville Co. Bids Aug. 7. CD 8/14, under LB.

▲† **McDonough Constr. Co. of Florida**, P. O. Box 1415, **Homestead, Fla., CA $1,847,000**, Guided Missile Control Facility No. 2, (WS107A), San Salvador Auxiliary Air Force Base for the Air Force Missile Test Center Offshore Facilities, NBy 5684, SAN SALVADOR. Dist. P. Wks. Office, 6th Naval Dist., Bldg. 12, U. S. Naval Base, Charleston, S. C., U.S.A. Bids July 20. CD 7/27, under LB.

▲ **FLORIDA**—Florida State Turnpike Auth., Box 1180, Fort Lauderdale,

FSTA—**Cone Bros. Contg. Co.**, Caesar and Cumberland Ave., Tampa, Fla., CA $481,085. Service Area No. 2 exterior facilities; CA $431,313, Service Area No. 3 exterior facilities; CA $286,535, Service Area No. 2, misc. grading and paving, CA $251,429, Service Area No. 3, misc. grading and paving.

FSTA—**Rainer & Cambron**, Orlando, Fla., CA $449,994, Service Area No. 1 exterior facilities; CA $227,898, Service Area No. 1, misc. grading and paving. Grand total $2,128,254. CD 7/26, under LB.

FLORIDA—State Road Dpt., Tallahassee,

Goodwyn & Murphree, Box 588, Troy, Ala., LB $127,953 (4 bidders) 94.75 ft. railroad bridge underpass of concrete abutment, L. & N. Railroad underpass west of Marianna, Job 5302-110, SR 10, Jackson Co. Bids Aug. 28. CD 8/17.

▲ **FLORIDA**—State Road Dpt., Tallahassee,

Fla.—**Cone Bros. Constr. Co.**, Box 130, Tampa, Fla., LB $123,377 (4 bidders) b. conc. surf. course with binder course 6.42 mi. SR 45, Job 1004-801, Hillsborough Co.; LB $459,986 (6 bidders) b. conc. 41.462 mi. SR 45 Job 1006-801; SR 60, Job 1006-801, and SR 574, Job 1009-801, Hillsborough and SR 45, Job 1303-801, Manatee Co.; LB $188,123, (7 bidders) b. conc. 17.322 mi. SR 600, Job 1602-801; SR 33, Job 1607-802; SR 17, Job 1609-801, SR 60, Job 1611-801, Polk Co.;

Fla.—**Langston Constr. Co.**, Box 3031, Orlando, Fla., LB $176,904 (4 bidders) limerock base, b. conc. wid'n. bridge by constr. triple 10x9 ft. conc. box culvert 0.501 mi. SR 500 and 600, Job 9201-150, Osceola Co.;

Fla.—**Marion Constr. Co.**, Box 577, Ocala, Fla., LB $324,754 (6 bidders) limerock base with b. conc. binder course, drainage structures 1.319 mi. SR 15 and 16 S-128 (3), Job 7102-202 and Job 7110-103, Clay Co.;

Fla.—**White Constr. Co.**, Williston, Fla. LB $167,309 (7 bidders) b. conc. 22.871 mi. SR 55, Job 0203-801 Citrus Co., SR 45, Job 3606-801, Marion Co.;

Fla.—**Dunn Constr. Co., Inc.**, 2508 3 Ave. N., Birmingham, Ala., LB $156,976 (6 bidders) b. conc. 16.82 mi. SR 70, Job 0906-801 Highlands Co. Bids Aug. 28. CD 8/17.

▲ **Foster Wheeler Corp.**, 165 Broadway, New York, N. Y. CA $4,550,085, steam generating units for New Johnsonville Steam Plant, to activate 2 new turbogenerators at Waverly, TENNESSEE. Grand total $6,430,867. Tennessee Valley Auth., New Sprankle Bldg., Knoxville, Tenn., Awarded Aug. 29;

American Blower Corp., 8211 Tireman St., Detroit, Mich., CA $290,593, forced and induced draft fans for two new units, New Johnsonville Steam Plant, Waverly (Tennessee);

United Centrifugal Pumps, 580 2nd St., Oakland, Calif., CA $464,791, pumping units New Johnsonville Steam Plant, Waverly (Tennessee);

Ingersoll Rand Co., 11 Broadway, New York, N. Y. CA $306,000, circulating water pumps, New Johnsonville Steam Plant, Waverly (Tennessee);

The Lummus Co., 385 Madison Ave., New York, N. Y. CA $460,000, condensers, New Johnsonville Steam Plant, Waverly (Tennessee);

Griscom-Russell Co., 285 Madison Ave., New York, N. Y., CA $359,398, feedwater heaters, New Johnsonville Steam Plant, Waverly (Tennessee).

BUILDINGS—LB & CA

Emerson Reinsch Constr. Corp., 4012 Columbia Pike, Arlington, Va. Owner Builds. $800,000. 85 unit APARTMENT BLDGS., 2000-18 Columbia Pike, ARLINGTON, VA.

Kuhn Constr. Co., Kanawha Valley Bldg., Charleston, W. Va., CA $862,590. NURSES HOME and TRAINING SCHOOL, Elmwood Ave., CHARLESTON, W. VA. Charleston General Hospital, Brooks and Elmwood Aves., Charleston, W. Va. Bids May 17, awarded Aug. 15. CD 5/23, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Mich., Imlay City—BA 9/20—Village, David Firestone, mgr., 400 E. Third St., sewage treatment plant, Contr. No. 2, $200,000. Plans deposit $15. McNamees, Porter & Seeley, 306 State Savings Bank Bldg., Ann Arbor, consult. engrs. CD 6/22.

BUILDINGS—BA

Mich., Jonesville—SCHOOL, etc.—BA 9/20—Bd. Educ., Jonesville Community Schools, 401 E. Chicago St., elementary school and gymnasium, shop addn. to high school, Louis C. Kingscott & Assoc., Inc., 511 Monroe St., Kalamazoo, archts. CD 3/9/55.

▲ **Ill., Chicago**—SCHOOL—BA 9/21—Bd. Educ., 228 N. La Salle St., Chicago, Zone 1, 2 story, bsmnt., brick, Wm. Howard Taft High School addn., 5625 N. Natoma Ave. $1,500,000. CD 12/1.

HEAVY CONSTRUCTION—LB & CA

The Horvitz Co., 4575 E. 146 St., Cleveland 28, O. LB $714,827, est. $730,500. (3 bidders) widen, repave Snow Rd. from Pearl to State Rds., Parma, CLEVELAND, O. Comes Cuyahoga Co., Court House, Cleveland 13, O. Bids Aug. 23. CD 8/15.

INDIANA—State Hy. Dpt., State House Annex, Indianapolis,

Ind.—Rieth-Riley Constr. Co., Goshen, Ind., LB $331,801, est. $419,183. c. conc. 0.581 mi. SR 100, Shadeland Ave. exten. Part "A" Marion Co.; LB $173,234, est. $211,069. bit., wid'n.r resurf. 0.808 mi. US 30, Part A, Kosciusko Co.;

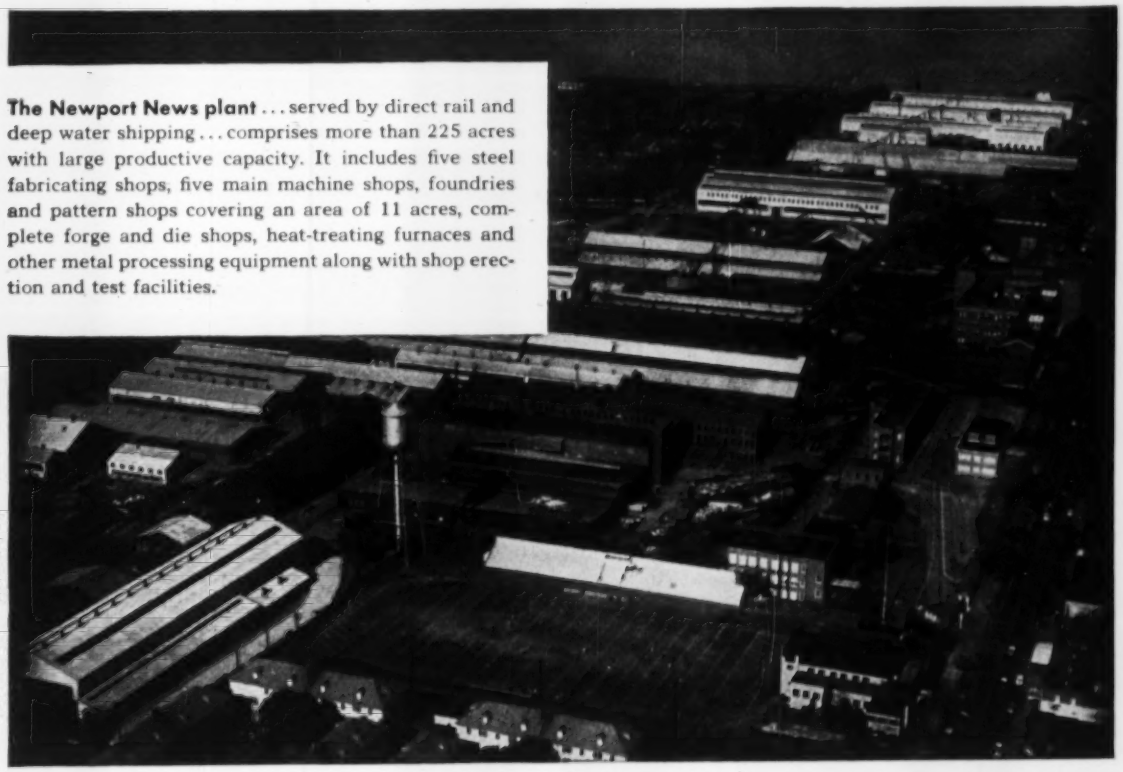
Ind.—McMahan Constr. Co., Rochester, Ind. LB $457,166, est. $526,544. bit. 5.935 mi. SR 63, Sullivan Co.;

Ind.—rejected bids landscaping interchange on SR 100, Contract No. RI-4068, Marion Co. Bids Aug. 28. CD 8/9.

▲ **ILLINOIS**—Illinois State Toll Comn., 20 N. Wacker Dr., Chicago, Zone 6,

Public Constructors, Inc., 431 Market St., Camden, N. J. CA, $3,026,100. Contract N-2A, grading, drainage, paving, appurtenances, precast concrete bridges for approx. 4.775 mi. North Illinois Toll Hy. Harlem Twp., Winnebago Co. Bids Aug. 23. CD 8/27, under LB.

(Continued on page 118)



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Newport News, Virginia

(Continued from page 116)

▲ **Santucci Constr. Co.**, 5035 Church St., Skokie, Ill., LB $1,294,400, Beverly Calumet Skyway Sewerage Sys., Morgan St., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Aug. 6. CD 7/19.

Thomas McQueen Constr. Co., 1313 Circle St., Forest Park, Ill., CA $448,015, Foster Ave. grade separation over Edens Expressway, CHICAGO, ILL. Cook Co., County Bldg., Chicago, Ill. CD 11/3/49.

Carl Soderquist, 300 N. 2 St., St. Charles, Ill., CA $125,318, sewage treatment plant addn., PLANO, ILL. City, City Hall, Plano, Ill. Caldwell Rhoads Co., Jacksonville, Ill., engr.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—**Brown Brothers**, 3245 W. St. Joseph St., Lansing, Mich., LB $670,550 (11 bidders) rein.-con., steel bridge on relocation of M-21, over Grand River, F B2 of 41-1-4 C2-R (F 185 14), Ada, Kent Co.;

Mich.—**Louis Garavaglia**, 24240 Mound Rd., Center Line, Mich., LB $514,571, est. $570,000 (10 bidders) rein.-con., steel bridge relocation of U.S. 16 over C. & O. RR, Novi, IN 1 of 63-13-r C1-RN (INC4-4) Oakland Co.;

Mich.—**Jutton-Kelly Co.**, 13240 Albert St., Dearborn, Mich., LB $284,188, est. $300,000 (8 bidders) vehicular grade separation bridge on Ford Rd. over Southfield Rd. in Detroit and Dearborn, FB4 of 82-3-26 C2-U (F 250 7), Wayne Co. Bids Aug. 22. CD 8/10.

▲ **MICHIGAN**—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,

Mich.—**Rieth-Riley Constr. Co.**, 837 Emmett St., Battle Creek, Mich., LB $178,427, est. $220,000 (4 bidders) bit. binder wid'n., bit. aggreg. 7.12 mi. M-71 Corunna-Vernon, M-76041 C1-U (SP 76-260) M-76041 C2-R (SP 76-26) M-76041 C3-U (SP 76-26) Shiawassee Co.; LB $170,314, est. $180,000 (7 bidders) aggreg. base course wid'n., b. conc. surf. 4.309 mi. on M-115, M-10041 C1-R (SP 10-16) Benzie Co.;

Mich.—**Nagelkirk & Rauta**, 2550 Chicago Dr., S.W., Grand Rapids, Mich., LB $135,286, est. $160,000 (10 bidders) aggreg. surf. 2.797 mi. FAS Rte. 416, Grattan, GS 41-102 C 3 (S 290 4), Kent Co.;

Mich.—**Walter Huthilz Co.**, 2850 Bay Rd., Saginaw, Mich., LB $86,811, est. $90,000 (6 bidders) aggreg. base course 2.484 mi. FAS Rte. 146, Williams, C S 9-52 C1 (S 250 1), Bay Co.;

Mich.—**W. H. Knapp Co.**, Monroe, Mich., LB $176,736 est. $150,000 (6 bidders) c. conc., wid'n., curb, gutter, bit. conc. surf. 0.655 mi. M-15, F 79031 C 1-U (Proj. 79-24) Millington, Tuscola Co. Bids Aug. 22. CD 8/16.

MICHIGAN—State Hy. Comn., Stevens T. Mason Bldg., Lansing,

L. A. **Davidson Co.**, 213 E. St. Joseph St., Lansing, Mich. CA $657,050, est. $600,000, three bridges, BIN 81 of 25-18-3 C2-RO BIN 83 of 25-18-3 C2-RO, etc., Genesee Co. Bids Aug. 8. CD 8/21, under LB.

▲ **MICHIGAN**—State Hy. Comn., Stevens T. Mason Bldg., Lansing,

Mich.—**Johnson-Greene Co.**, 416 E. Huron St., Ann Arbor, Mich. CA $1,041,602, est. $1,300,000, dual grading, drainage, and one 27-ft. aggregate base course road prime and double seal 9.239 mi. US 131, M 67-22 C3-RN, Osceola Co.;

Mich.—**Loselle Constr. Co.**, 1555 Goddard St., Wyandotte, Mich. CA $1,809,788, est. $1,900,000, dual 24 ft. c. conc. 5.06 mi. relocation of US 23, 2½ mi. south of M-57 and northerly, BIN 25-54 C3-RO (BIN 97-2-14), Genesee Co. Bids Aug. 8. CD 8/21, under LB.

G. Toccalino & Sons, 17149 Wakenden St., Detroit 19, Mich., CA $183,153. PW-2875F, Group 56-5, grading, c. conc. 4,935 ft., Schaefer St. from Seven Mile Rd. to Eight Mile Rd., DETROIT, MICH. City, City-County Bldg., Detroit, Mich. Bids Aug. 7, awarded Aug. 14.

BUILDINGS—LB & CA

Cleveland Constr. Co., 3866 Carnegie Ave., Cleveland 15, O. CA $500,000 (5 bidders) permanent HEADQUARTERS BLDG., CLEVELAND, O. Cleveland Community Chest, 1101 Huron Rd., Cleveland 15, O. Bids July 21, awarded Aug. 24. CD 5/8.

Krause & Pagura, 1059 Cable Ave., Columbus, O. LB $209,900, parking garage, partially underground, adjoining Mershon Auditorium, 17 and High Sts., COLUMBUS, O. Bd. Trustees, Ohio State University, N. High St., Columbus, O. CD 7/23.

Lehman-Gerstner, 1025 W. 3 Ave., Columbus, O. CA Est. $500,000. 50,000 sq. ft. development TEST LABORATORY, 420 Surface Dr., COLUMBUS, O. Surface Combustion Corp., Janitrol Aircraft Automotive Div., 400 Dublin Ave., Columbus, O. H. James Holroyd & Assocs., 5201 W. Broad St., Columbus, O., archts. Beiswenger, Hoch & Assocs., Inc., 661 W. Market St., Akron, O., engr.

Knowlton Constr. Co., 1133 W. Columbus St., Bellefontaine, O. CA $637,500, est. $597,407, honor DORMITORY, FIRE ENGINE HOUSE, six guard towers, Marion Correctional Institution, MARION, O. Dpt. P. Wks., Columbus, O. Bids Aug. 24. CD 8/7.

▲ **John Wile Constr. Co.**, 826 Humler St., Louisville, Ky. CA, $1,346,600. 3 story Clark County HOSPITAL addn., JEFFERSONVILLE, IND. Clark County Memorial Hospital, Sparks and Missouri Aves., Jeffersonville, Ind. Bids July 31, awarded Aug. 20. CD 8/20, under LB.

Jezo Constr. Co., 1909 S. 7 St., West Allis, Wis. CA, $675,825. general contract, Elementary SCHOOL, WEST ALLIS, WIS. Bd. Educ., 7510 W. National Ave., West Allis, Wis. Bids Aug. 20. CD 8/27.

Palmer-Smith Co., 415 Brainard St., Detroit, Mich., LB $753,065 (4 bidders) Greenfield Elementary SCHOOL, BIRMINGHAM, MICH. City, School Dist., Amos F. Gregory, secy., Chester and Martin Sts., Birmingham, Mich. Bids Aug. 21. CD 8/6.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

† **Tex., Daingerfield**—STEAM JET EJECTORS—BA 10/11—Officer in Charge of Constr., 8th Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans (Algiers), La., steam jet ejectors, barometric condensers and related facilities, Ordnance Aerophysics Laboratory, NBy 1136, Spec. 1136/56. Plans deposit $70.

BUILDINGS—BA

Tex., Denison—SCHOOL—BA 9/25—I. N. Burks, pres., Denison Independent School Dist., 1 story, concrete, masonry school addn. and athletic field house. $500,000. Plans deposit $25. Wilson, Patterson & Assocs., 601 Bailey, Ft. Worth, archts. CD 5/1.

Neb., Kearney—DORMITORIES—BA 9/24—State Normal Bldg., Lincoln, dormitories for men and women at State Teachers College. $700,000. Helleberg & Helleberg, Kearney, archts. CD 4/12.

▲ **Tex., San Antonio**—HIGH SCHOOL—BA 10/4—San Antonio Independent School Dist., Lavaca and Matagorda Sts., Highlands Junior-Senior High School, on Hi-Lions Park at Elgin and Patti Sts. $2,500,000. Plans deposit $50. Extended date. Phelps & DeWees & Simmons, 342 W. Woodlawn St., archts. CD 8/30.

† **Tex., Daingerfield**—RECEIVERS—BA 10/11—Officer in Charge of Constr., 8th Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans (Algiers), La., air receivers, Naval Ordnance Aerophysics Laboratory, NBy 1188, Spec. 1188/56 (revised). Plans deposit $10. Bids June 21 rejected, LB $544,400. CD 7/16, under CA.

HEAVY CONSTRUCTION—SLC

Colo., Aurora—Morris Bros. Constr. Co., 2801 Peoria, soon lets contract constr. drainage channel. $300,000. Phillips, Carter & Osborn, Inc., Insurance Bldg., Denver, Zone 2, archt.-engr.

HEAVY CONSTRUCTION—LB & CA

† **Pine Bluff Sand & Gravel Co.**, foot of Nebraska St., Pine Bluff, Ark., CA $756,598. constr., repair dikes and revetment, Missouri River, Peterson Cutoff-Lower Sandy Point Bend, near Mondamin, Inv. 25-066-57-14, IOWA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 10. CD 8/17, under LB.

L. G. Barcus Sons, 1430 State St., Kansas City, Kan., LB $143,036, storm and sanitary sewers, Dist. 684, Div. 1, East Bottoms Dist.; LB $79,398, storm and sanitary sewers, Dist. 686-687, Div. 1, East Bottoms Dist., KANSAS CITY, MO. City, Dir. P. Wks., City Hall, Kansas City, Mo. Bids Aug. 24.

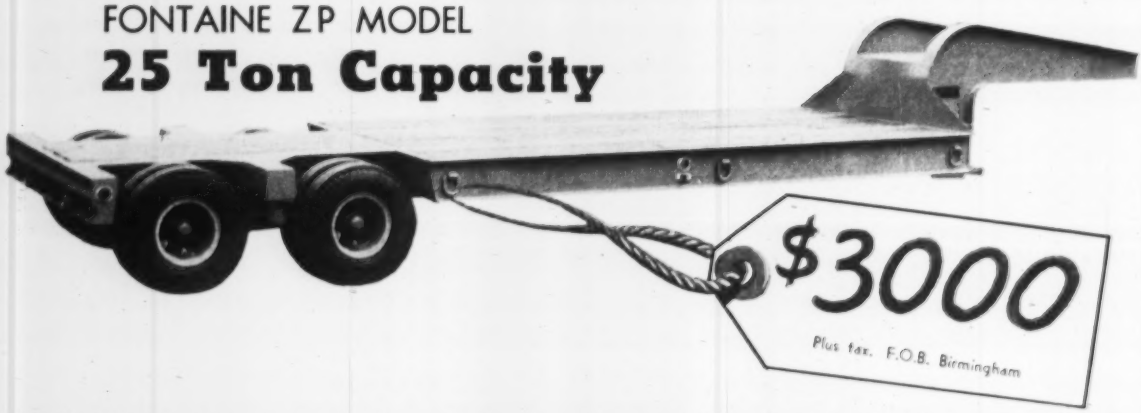
Torson Constr. Co., 1890 Woodsweather Rd., Kansas City, Mo. LB $79,909, storm and sanitary sewers

(Continued on page 121)

Buy Direct and Save!!

FONTAINE ZP MODEL

25 Ton Capacity



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Quality Workmanship

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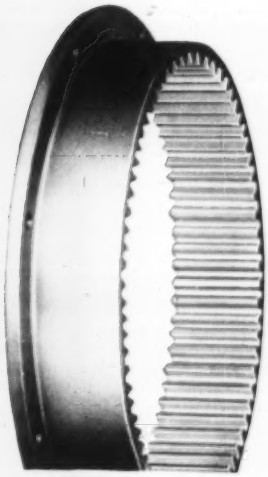
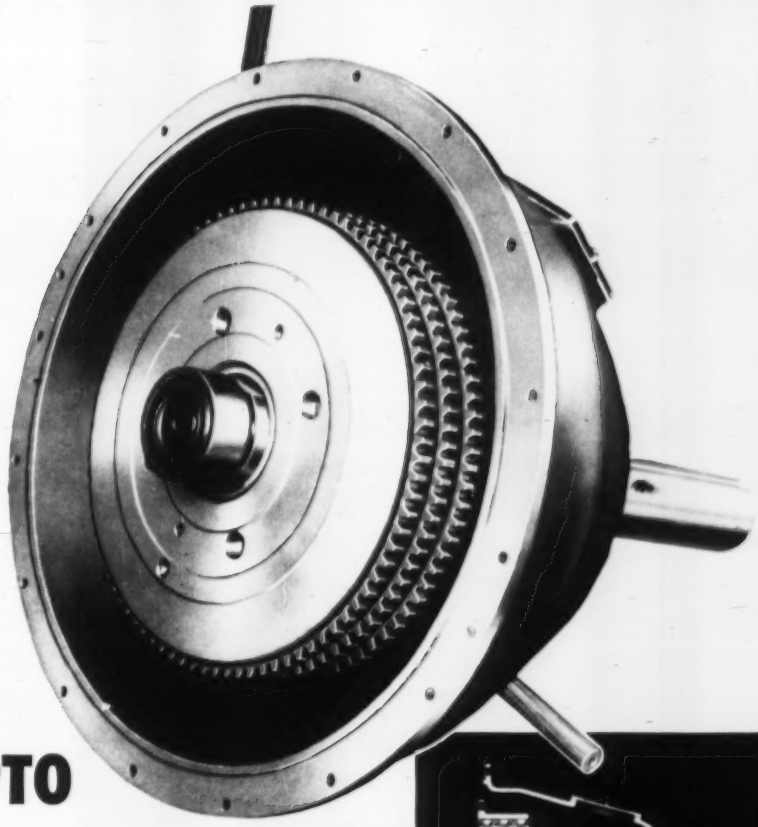




Twin Disc's new SP-321 PTO

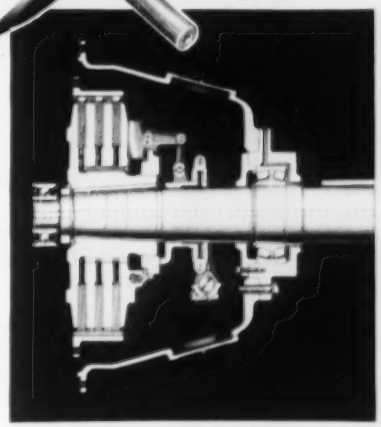
meets increased power requirements of modern industrial engines

Increased rpm. . . . increased hp output—that's the trend among industrial engine manufacturers. And that's where Twin Disc comes into the picture with its new SP-321 Power Take-Off—a friction clutch designed to meet the increased power transmission requirements of today's higher speed, higher horsepower industrial engines.

Unusually compact for its high capacity, this new PTO can handle up to 6730 lbs.-ft. of torque and transmit up to 602 hp at 1550 rpm. It's available with a standard SAE No. 00 flywheel housing adapter to meet the widest range of industrial power units in its hp and rpm ratings.

Other features include a triple driving-plate construction to provide ample friction surfaces to withstand excessive heat . . . a pilot bearing with double-width bearing race for greater lubrication retention and long life . . . and a spherical roller bearing at the clutch output shaft for greater overload and side-pull capacity.

The new SP-321 Power Take-Off—along with the recently announced SP-318 and SP-314—makes the Twin Disc line of heavy-duty friction power take-offs *the broadest, most complete line available.* For full information, write Twin Disc Clutch Company, Racine, Wisconsin. Request *new* Bulletin 508.



Twin Disc's new SP Power Take-Offs feature: counter-balanced engaging linkage; positive-type clutch engagement; pilot bearing with double grease shield; clutch plates with maximum friction area; spherical roller bearing; heavy-duty, oversize output shaft; easily adjusted clutch through pin and adjusting ring.

TWIN DISC

TWIN DISC

Friction Clutches and Fluid Drives

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

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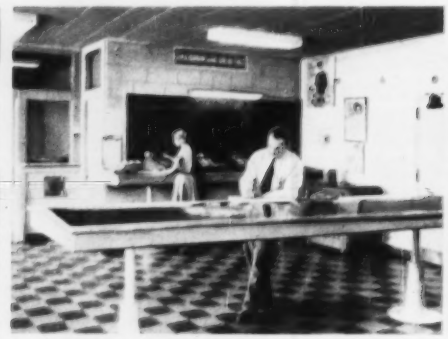
"Give us all the advantages of your standardization . . . in buildings that meet all the requirements of our distribution operation." And Luria did!

WHY OMAR, INC. CONTINUES TO BUILD WITH LURIA...31 BUILDINGS IN SIX YEARS!

$10,000,000 Expansion for aggressive midwest baking concern includes 31 Luria Steel Frame Buildings of flat roof type.



Operations Sections are efficient, pleasant working spaces incorporating general offices, managers offices, meeting and utility rooms.

Internal Loading. All units contain internal garaging facilities and underground gasoline storage.

Standard Design of all 31 buildings for Omar, Inc., America's fastest growing bakers, includes handsome buff brick walls, built-up roofing, steel sash and doors. Identical floor plans make every Omar branch familiar to all route men.

There is a standardized solution to your building problem—and Luria has it! Today, in the distribution field, Luria Buildings are as well-known for their ability to *adapt* to individual requirements as for their standardized economies.

And Luria structures are built for *permanence*—engineered to surpass the most stringent building code requirements. You'll find more and more important companies in your field ordering—and re-ordering—Luria Buildings. Contact your nearest Luria representative; *it pays!*

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(Continued from page 118)

Dist. 685-86-87, Div. 1, East Bottoms Dist. (Kansas City, Mo.).

Dwight Haworth, North Locust St., Ottawa, Kan., LB $162,070, paving at various locations, PAOLA, KAN. City, City Hall, Paola, Kan. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs. Bids Aug. 24. CD 7/15/49.

TEXAS—State Hy. Comn., Austin, cancelled bids to have been opened Sept. 12, 16.067 mi. Hy. FM 301 and 1780, Control No. C 885-1-3, C 885-2-4, R 967-3-4 and R 967-4-1, Cochran, Hockley and Yoakum Counties. CD 8/22.

▲ **TEXAS**—State Hy. Comn., Austin,

Tex.—Texas Bitulithic Co., P. O. Box 10365, Dallas, Tex., CA $826,401, grading, sewers, c. conc. 2.22 mi. Hy. U. S. 77. Proj. 1 22 (12), Dallas Co.;

Tex.—Cage Bros., 6959 San Pedro St., San Antonio, Tex., CA $1,087,458, grade, grade separation structures, flexible base 11.515 mi. Hy. U. S. 77. Proj. 1 487 (12) and 1 6487 (12), Ellis Co.;

Tex.—F. & C. Eng. Co., Inc., P. O. Box 2426, Houston, Tex., CA $985,261, grade, storm sewer, cement stabil. base, c. conc., 1.47 mi. Hy. U. S. 90A. Proj. C 512 (24) and UG 512 (25), Harris Co.; o

Tex.—Ivan Dement, P. O. Box 1787, Amarillo, Tex., CA $990,565, grading, flexible base, b. conc. 20.074 mi. Hy. U. S. 87 and 287. Proj. F1069 (3), Moore Co. Grand total $3,889,685. Bids Aug. 15, awarded Aug. 20. CD 8/20, under LB.

TEXAS—State Hy. Comn., Austin,

W. Paul Carlisle, P. O. Box 13104, Dallas, Tex., CA $501,505, 2.861 mi. Trinity River Bridges and approaches, Hy. FM 1129 and 85, Proj. S 1372 (5) and S 219 (3), Navarro and Henderson Counties. Bids Aug. 15, awarded Aug. 20. CD 8/20, under LB.

† **U. S. Eng.**, Box 1229, Galveston, Tex., rejected bids Aug. 16, repairing north and south jetties, Inv. No. CIVENG-41-243-57-3, Aransas Co., TEXAS. LB $354,055. New bids Sept. 5, under CIVENG-41-243-57-12. CD 8/29, under LB.

▲ **Stanford Constr. Co.**, P. O. Box 11392, Fort Worth, Tex., LB $1,410,377. Contr. 1, sewage treatment plant, FORT WORTH, TEX. City, City Hall, Fort Worth, Tex. Bids Aug. 30. CD 8/3.

† **MONTANA**—U. S. Forest Service, Missoula.

Kiely Constr. Co., Butte, Mont., LB $258,877, reconstr. 3.2 mi. West Fork Bitterroot 91C and 2.8 mi. Blue Joint 262 roads, incl. bridge over spillway of West Fork Dam.

† **Morgen & Oswood**, Glasgow, Mont., CA $203,277, est. $224,320 (2 bidders) infirmary bldg., Air Force Base, Inv. 57-1, GLASGOW, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Aug. 23. CD 7/30.

COLORADO—State Hy. Dpt., 4201 E. Arkansas St., Denver.

C. L. Hubner, Inc., 4200 E. Jewell St., Denver, Colo., CA, $155,870, est. $188,000, plant mix asph. surf. 7.906 mi. Colo. Proj. S 0901 (25) Cheyenne Co. Bids Aug. 24, awarded Aug. 28. CD 8/17.

BUILDINGS—LB & CA

Wahl Constr. Co., Rte 2, St. Cloud, Minn., LB $763,613 (3 bidders) women's DORMITORY, at St. Cloud State Teachers College, ST. CLOUD, MINN. State Teachers College Bd., W. W. Holes, pres., Stewart Hall, State Teachers College, St. Cloud, Minn. Bids Aug. 28. CD 8/21.

School Dist. of Riverview Gardens, Bd. Educ., Wm. R. Pelster, pres., 587 Chambers Rd., Riverview Gardens 15, Mo., rejected bids Aug. 14, 1 story, 96x100 ft., 50x38 ft. and 42½x23½ ft. GYMNASIUM, 54x71 ft. MUSIC BLDG., 60x71½ ft. SHOP BLDG. at high school, brick, masonry block, steel constr., Shepley and Toelle Bds., Bellefontaine Neighbors, RIVERVIEW GARDENS (St. Louis 15, P.O.) MO. LB $500,545. New bids Sept. 5. Hellmuth, Obata & Kassabaum, 315 N. 10 St., St. Louis 1, Mo., archts. W. P. Manske, 9947 Riverview Dr., St. Louis 15, Mo., assoc. archt. CD 8/23, under LB.

Peter Kiewit Sons Co., Omaha Natl. Bank Bldg., Omaha, Neb., CA $500,000, PLANT, 67 and L Sts., OMAHA, NEB. Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, O. CD 10/20.

J. D. Cooper Constr. Co., P. O. Drawer 3947, Odessa, Tex., LB $662,254, est. $650,000, SCHOOL Imprvs., incl. Junior High School addn. 3 elementary schools; new administration bldg. and fieldhouse, CRANE, TEX. Crane Independent School Dist., Grady Nix, supt., Crane, Tex. Bids Aug. 21. CD 8/14.

James Stewart Co., Employers Insurance Bldg., Dallas, Tex., CA $350,000. STORE, Forest and Morrell Aves., DALLAS, TEX. Bramwell Constr. Co., 318 Cadiz St., Dallas, Tex.

▲ **Fluor Corp. Ltd.**, 2500 Atlantic St., Los Angeles, Calif., CA Est. $5,000,000. Design and constr. 27,000 bbl. per day fluid catalytic CRACKING UNIT, EL PASO, TEX. Standard Oil Co. of Texas, 6501 Trowbridge St., El Paso, Tex. CD 2/6.

Carl Christensen, 2800 Cribbon Ave., Cheyenne, Wyo., CA, $368,835, est. over $350,000, 3 story, 18,000 sq. ft. ELEMENTARY SCHOOL, CHEYENNE, WYO. Bd. Educ., School Dist. 1, 2118 Central Ave., Cheyenne, Wyo. Bids Aug. 22, awarded Aug. 24.

J. C. Boespflug Constr. Co., 502 N. 25 St., Billings, Mont., CA, $933,500, general contract HIGH SCHOOL addn. and GYMNASIUM, THERMOPOLIS, WYO. Hot Springs County High School Dist., Thermopolis, Wyo. Bids July 25. CD 8/7, under LB.

H. W. Houston, Pueblo, Colo., CA, $711,912, general contract 1 story, bsmnt., 101,500 sq. ft. Sears STORE, W. 4 St., near the viaduct, PUEBLO, COLO. Pueblo Shopping Center, c/o T. H. Buell & Co., engrs.-archts., 730 14 St., Denver, Colo. Bids July 31, awarded Aug. 23. CD 8/8, under LB.

(Continued on page 124)

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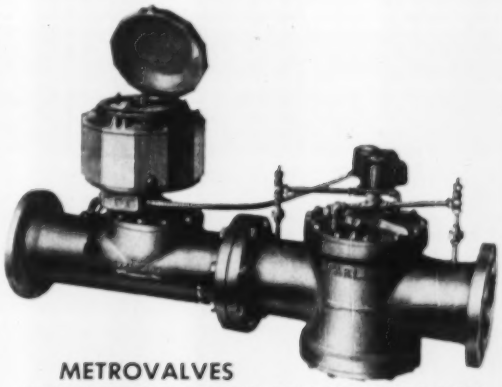

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AUTOMATIC FLOW REGULATION—TOTAL FLOW REGISTRATION

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225 NORTH TEMPLE CITY BLVD., EL MONTE, CALIF.

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CHICAGO 8	1500 South Western Ave.	85 Industrial St	SAN FRANCISCO 24
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DALLAS 1	505 No. Ervay St.	207 Queens Quay West	TORONTO, CAN.
KANSAS CITY 6, MO.	6 E. Eleventh St.	248 London Rd.	ROMFORD, ENGLAND

What a Seismic Survey did for the Massachusetts Turnpike

Faced with a tight time schedule and complicated geology, the 123-mile $239-million Massachusetts Turnpike had to obtain the greatest amount of subsurface information in the quickest possible time. For this, the Turnpike Authority and general consulting engineers Howard, Needles, Tammen & Bergendoff, turned to Gahagan for a Seismic Survey, supplementing borings placed at key spots. Gahagan crews with portable equipment took 45,000 seismic readings between August 9, 1954 and May 4, 1955. These provided a continuous profile of bedrock along the centerline and 50 to 65 feet right and left of centerline, in all cuts and at sites of two major bridges. Final results were frequently rushed to section engineers in preliminary form within a day or two of field operations. Write on your letterhead for Bulletin 1 to Geophysical Survey Division, Gahagan Dredging Corp., 90 Broad St., New York 4, N. Y.

Established in 1898,
Gahagan is a leader in hydraulic dredging

ANOTHER
GAHAGAN
CASE HISTORY

CIVIL ENGINEERING

NOVEMBER 1953 Reader's Digest

ASCE Names...

Sanitary District of Chicago One of "Seven Modern Wonders"

Allis-Chalmers Equipment Employed in this Outstanding Example of Modern American Engineering

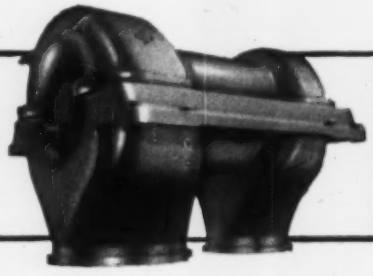
After three years of consideration, the American Society of Civil Engineers has announced the selection of "Seven Modern Wonders of American Engineering." One of the projects selected was the sewage disposal system built up by the Metropolitan Sanitary District of Greater Chicago over the past half century.

The project at Chicago is designed to handle the storm water and wastes from population and industry equal to 7,500,000 people. Using principally the activated sludge process, it treats over a billion gallons of sanitary sewage per day, enough to cover a square mile area to a depth of five feet.

In handling this huge mass of sewage in three great treatment plants and several pumping stations, the Sanitary District depends upon the reliability of Allis-Chalmers equipment, including switchgear, motors and generators, compressors, condenser and steam turbine equipment, and many centrifugal pumps and motors.

Backed by years of research, design and manufacturing experience, Allis-Chalmers can give you the help you need in planning modernization or expansion of your facilities. For further information, call your local A-C office, or write Allis-Chalmers, Milwaukee 1, Wis.

First Axial Blower for a U. S. Sewage Plant

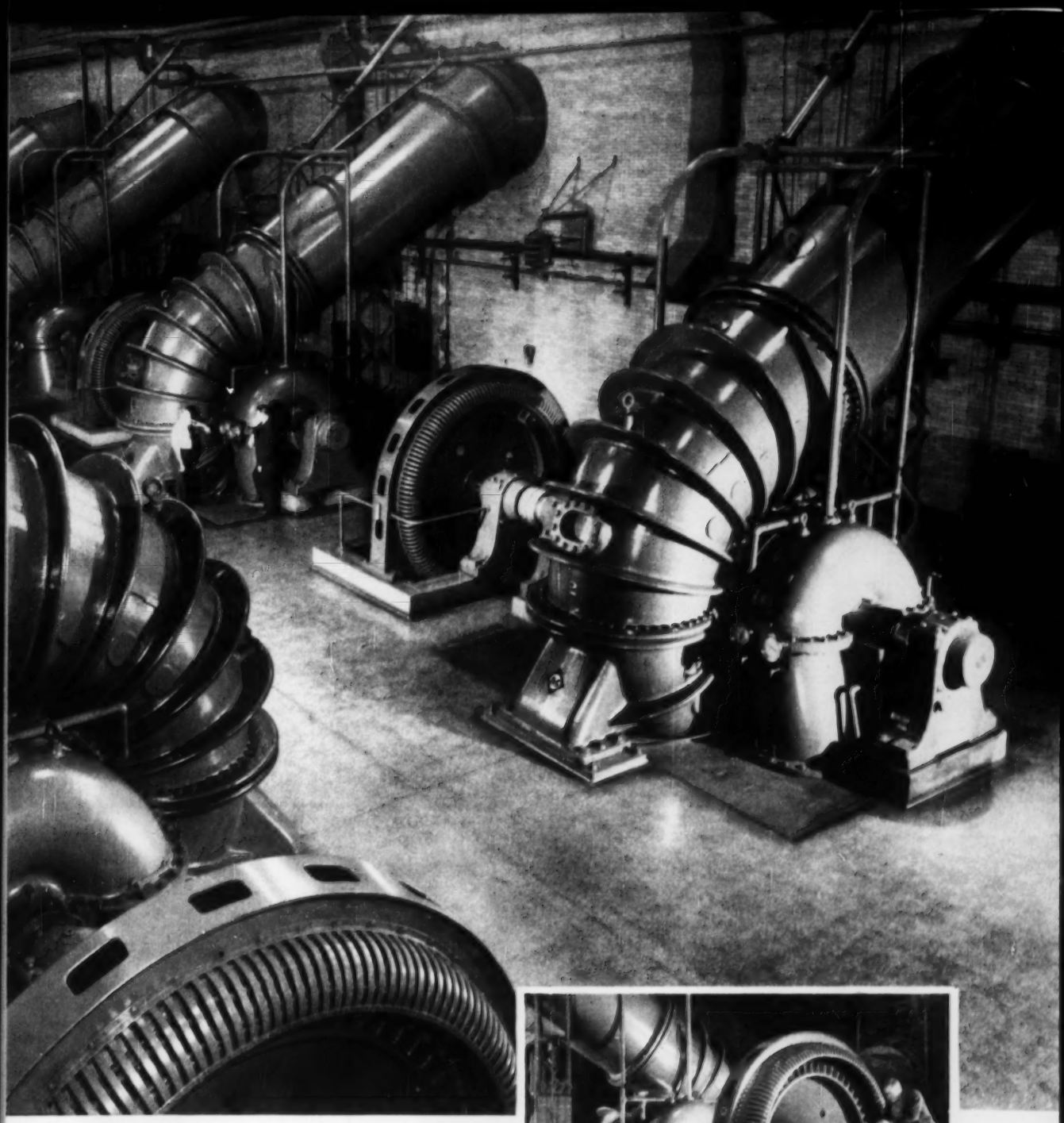


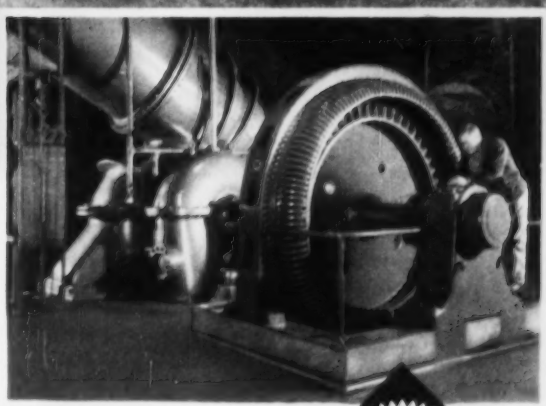
Allis-Chalmers is furnishing a multi-stage axial compressor similar to this for use at the Sanitary District's West-Southwest Sewage Treatment Works.

The 200,000-cfm unit, first ever to be applied to sewage aeration in this country, was selected because of the high operating efficiency inherent in the axial-type blower. It will be driven by an 8250-hp, 3600-rpm Allis-Chalmers steam turbine.

The axial blower will be used for base-load duty, to take advantage of its high efficiency.

ALLIS-





At the Racine Avenue Station, 12 A-C pump-motor units are on sanitary and storm sewage service. Originally four units were installed, but constant growth of the system has dictated tripling the facilities.

The installation now includes twelve 72-inch centrifugal pumps, ranging in capacity from 375 to 500 cfs. They are driven by Allis-Chalmers synchronous motors, ranging in size from 1000 to 1750 hp.

A-5054

CHALMERS

A-C ALLIS-CHALMERS

(Continued from page 121)

FAR WEST

HEAVY CONSTRUCTION—BA

Calif., San Diego—BA 9/24—Spring Valley Sanitary Dist., 308 Civic Center, 1600 Pacific Hy., sewage treatment plant, $100,000; trunk sewer line $300,000, Spring Valley. Plans deposit $10.

† **Wash., Spokane**—RUNWAY, etc.—BA 10/4—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, reconstr. 150x7,000 ft. runway, 2-20 with b. conc., two 150x1,000 ft. concrete extens., Geiger Air Force Base, ENG-45-108-57-34. CD 8/22.

† **Arizona and Utah**—BA 10/9—Bureau Reclamation, Dpt. Interior, Kanab, Utah, earthwork, culverts for access highway, Station 400 plus 00 to Station 1497 plus 50, Glen Canyon Dam, Colorado River Storage Proj., about 115 mi. north of Flagstaff, Ariz. Spec. CD 4756, adv. ENR 9/13. CD 4/27.

† **Washington**—CONTROL EQUIPMENT ASSEMBLY—BA 10/16—Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo., one motor control equipment assembly for Burbank Pumping Plant No. 2, Columbia Basin Proj., Spec. DS 4754. L. N. McClellan, ch. engr.

BUILDINGS—BA

▲ **Calif., Soledad**—CELL BLOCK UNITS—BA 10/9—State Div. Architecture, 1120 N St., Sacramento, four 1 story cell block units, California State Prison, $6,000,000. Plans deposit $100. CD 1/27.

† **Wash., Tacoma**—HOSPITAL—BA 9/21—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, converting and rehabilitating 2 Madigan Army Hospital buildings for use as obstetrical suite and nursery and for similar work to converting 6 bldgs. into out-patient dept., Inv. 57-33. CD 7/27/51.

BUILDINGS—SLC

Wash., Seattle—CLASSROOM BLDG.—Seattle University, Broadway and E. Madison, soon lets contract 5 story, 60,000 sq. ft. reinf.-con. classroom bldg., $600,000. J. W. Maloney, Central Bldg., Zone 4, archt.

HEAVY CONSTRUCTION—LB & CA

UTAH—State Road Comm., State Capitol, Salt Lake City.

Utah—**Ralph Child Constr. Co. and Whiting & Hammond Constr. Co.**, Springville, Utah, LB $411,362, est. $412,645, bit. road mix surf., 17.8 mi. Wah Wah Mt. Summit, Proj. S-0352 (1), Beaver and Millard Counties.

Utah—**Wangsgaard Constr. Co.**, Box 286, Logan, Utah, LB $302,319, est. $218,105, road mix bit. surf., 5.715 mi., State Rd. 24 between Twin Rocks and Fruita, FAPS Proj. No. S-0371 (1), Wayne Co. Bids Aug. 21.

WASHINGTON—State Hy. Comm., Olympia, rejected bids Aug. 21, light bit. surf. & conc. paving 1.483 mi. Primary State Hy. 7, cities of Soap Lake and Ephrata, Grant Co. LB $230,509. CD 8/28, under LB.

WASHINGTON—State Hy. Comm., Olympia, rejected bids July 31, impr. Secondary State Hy. 13-A, Airport Rd. to North River, Pacific Co., LB $583,004, paving 0.522 mi. Primary State Hy. 3, Highland St. to Chestnut St. in Clarkston, Asotin Co., LB $139,746. CD 8/10, under LB.

† **R. T. Earley Co.**, 321 Middle Waterway, Tacoma, Wash., LB $904,916, ammo storage facilities, Paine Air Force Base, Inv. 57-19, EVERETT, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Aug. 28. CD 8/21.

† **OREGON**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland.

Ore.—**Central Heating Co.**, 865 Olive St., Eugene, Ore., CA $234,800 (3 bidders) pave 8.448 mi. Coast Hy., Curry Co.;

Ore.—**A. L. Harding Co.**, Box 708, Stayton, Ore., CA $661,227, (10 bidders) grade-2.131 mi. and clear 4.026 mi. road, constr. bridge, Newkowin-Otis cutoff, Tillamook and Lincoln Counties. Bids Aug. 24. CD 8/15.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Charles L. Harney, Inc., 575 Berry St., San Francisco, Calif., LB $1,583,595 (4 bidders) extending Bayshore Freeway 2 mi. from Willow Rd., constr. 4 bridges, San Mateo and Santa Clara Counties. Bids Aug. 29. CD 8/3.

† **CALIFORNIA**—U. S. Forest Service, 630 Sansome St., San Francisco,

J. W. Briggs, Box 283, Bend, Ore., CA $645,301 timber access road 11½ mi. in Shasta Trinity National Forest, Hirz Mountain Rd., Inv. 57-6, Shasta Co. CD 8/21, under LB.

▲ **M & K Corp. and Piombo Constr. Co.**, 519 California St., San Francisco, Calif., LB $1,344,650 (3 bidders) tunnel excav. from Cherry River to Lake Eleanor, Contr. 281, SAN FRANCISCO, CALIF. City and San Francisco Co., P. Utilities Comn., City Hall, San Francisco, Calif. CD 3/12.

BUILDINGS—LB & CA

† **Bureau Indian Affairs**, 1001 N. E. Lloyd Blvd., Portland, Ore., cancelled bids to have been opened Aug. 21, 99x79 ft., steel or timber frame WAREHOUSE, Portneuf River pumping station, POCATELLO, IDAHO. Will re-advertise.

† **U. S. Eng.**, 4735 E. Marginal Way, Seattle 4, Wash., cancelled bids to have been opened Aug. 16, construct and finance, 22 single HOUSING UNITS and 22 duplex HOUSING UNITS with utilities ENG-45-10857-12, FORT LAWTON, WASH. CD 7/19.

C. F. Shane, Renton, Wash., Day Labor, $400,000, 60 APARTMENT UNITS, RENTON, WASH.

Purvis Constr. Co., S. 720 Washington St., Spokane, Wash., LB $176,490 (10 bidders) 1 story, part basmt., 18,120 sq. ft., reinf.-con. WAREHOUSE, SPOKANE, WASH. Bitco, Inc., E. 2920 Trent St., Spokane, Wash. R. L. Hahn, W. 404 Boone Ave., Spokane, Wash., engr.

Fergot Constr. Co., 8228 E. Garden Dale St., Paramount, Calif., LB $353,788 (14 bidders) 1 story, frame, stucco Primary School No. 1, BELLFLOWER, CALIF. Bellflower City School Dist., 16703 S. Clark Ave., Bellflower, Calif. Bids Aug. 16. CD 8/8.

▲ **James E. Barnes Constr. Co.**, 1940 Spring St., Redwood City, Calif., LB $1,914,000 (4 bidders) general contract 4 WARD bldgs., Sonoma State Hospital, ELDRIDGE, CALIF. State Div. Architecture, 1120 N St., Sacramento, Calif. Bids Aug. 28. CD 7/23.

Ben K. Tanner & Sons, 387 S. Robertson Blvd., Beverly Hills, Calif., CA, $396,500, reinf.-con. CHURCH, 175 E. 119 St., HAWTHORNE, CALIF. Roman Catholic Archbishop of Los Angeles, 1531 W. 9 St., Los Angeles, Calif. Barker & Ott, 4334 W. Pico St., Los Angeles, Calif., archts.

▲ **Orinda Homes, Inc.**, Orinda, Calif., Owner Builds, $5,000,000. 400-HOME subdivision, LeRoy Heights, SAN PABLO, CALIF.

CANADA

BUILDINGS—BA

▲ **N. B., Fredericton**—HOUSING—BA 9/28—S. C. Ings, regional construction engr., Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S.; 135-Class I, D.N.D. Housing units with related services, married men's quarters, Canadian Army Camp, for Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. $1,000,000. Extended date. Wiggs, Walford, Frost & Lindsay, 4350 Sherbrooke St. W., Montreal, Que., engrs. CD 7/27.

HEAVY CONSTRUCTION—LB & CA

General Constr. Co. Ltd., Granville Island, Vancouver, B. C., CA $609,638, Sections C-2, C-4 and C-1 North, channel constr. and auxiliary works for Okanogan flood control, Similkameen area, BRITISH COLUMBIA. B. C. Govt., Parliament Bldgs., Victoria, B. C. Awarded Aug. 25. CD 7/19, under LB.

Ted Lee, Dawson Creek, B. C., CA, $120,000, water and sewerage sys. extens., FORT ST. JOHN, B. C. Town, Fort St. John, B. C. Associated Engineering Services Ltd., 10250 106 St., Edmonton, Alta., engrs. Awarded Aug. 23.

Terminal Constr. Co., Ltd., Dominion Square Bldg., Montreal, Que., LB $480,000 (only bidder) 20 PM housing units, R.C.A.F. Station, GOOSE BAY, LABRADOR. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Bids July 26. CD 7/17.

Timberland Machines Ltd., Young St., Woodstock, Ont., CA, $649,000, supplying, erecting stiff-leg derricks at locks of St. Lawrence Seaway, ONTARIO and QUEBEC. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids July 14, awarded Aug. 17. CD 8/22, under LB.

Atlas Constr. Co. Ltd., 4781 St. Catherine St. W., Montreal, Que., CA, $864,908, constr. and maintenance temporary approach to Honore Mercier Bridge and demolition on route in Lachine Section of Seaway, QUEBEC. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids Aug. 14, awarded Aug. 17. CD 8/21, under LB.

▲ **Dominion Bridge Co. Ltd.**, Lachine, Que., LB $3,031,097. (8 bidders) superstructure 2 vertical lift bridges near Caughnawaga in Lachine Section, QUEBEC. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids Aug. 28. CD 7/31.

BUILDINGS—LB & CA

Bird Constr. Co. Ltd., 12525 127 Ave., Edmonton, Alta., CA, $400,000, 1 story, 135x275 ft., reinf.-con. TANNERY, EDMONTON, ALTA. Dominion Tannery Ltd., Jarvis Ave. and Arlington St., Winnipeg, Man. K. S. Stanley & Co., 618 Northern Hardware Bldg., Edmonton, Alta., archts. Awarded Aug. 17. CD 5/9.

D. Robinson Constr. Co., Nanaimo, B. C., CA, $650,000, concrete, frame WAREHOUSE and REPAIR SHOP, CROFTON, B. C. B. C. Forest Products Ltd., 995 W. 6 Ave., Vancouver, B. C. Awarded Aug. 17.

S. D. Miller & Sons, 6999 Cote des Neiges Rd., Montreal, Que., CA Est. $650,000, 50-unit HOUSING, Ile Perot, MONTREAL, QUE. Bellevue Estates Ltd., 6999 Cote des Neiges Rd., Montreal, Que. S. R. Shenkman, 3777 Cote des Neiges Rd., H. Z. Kahn, 6999 Cote des Neiges Rd., and Eliasoph & Berkowitz 4950 Queen Mary Rd., all Montreal, Que., archts. J. A. Beachemin & Assocs., 1610 Sherbrooke St. W., Montreal, Que., engrs. Awarded Aug. 20.

▲ **J. L. E. Price & Co., Ltd.**, 4664 St. Catherine St. W., Montreal, Que., CA $1,000,000. HOSPITAL alterations, MONTREAL, QUE. Bd. Governors Jewish General Hospital, 3758 Cote St. Catherine Rd., Montreal, Que. McDougall, Smith & Fleming, 1235 McGill College Ave., Montreal, Que., archts. Awarded Aug. 22.

ALASKA

HEAVY CONSTRUCTION—BA

† **Alaska, Wrangell**—BA 9/26—Alaska Pub. Wks., Dpt. Interior, Box 1181, Juneau, 32,666 ft. 6- to 15-in. sanitary sewers, Proj. 50-A-104, $391,000. Plans deposit $25. Extended date. CD 7/26.

BUILDINGS—BA

† **Alaska, Homer**—SCHOOL—BA 9/26—Dpt. Interior, Alaska Pub. Wks., Box 1181, Juneau, high school bldg., Proj. 50-A-234, $479,000. Plans deposit $25. Extended date. CD 8/14.

HEAVY CONSTRUCTION—LB & CA

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, CA $1,702,652, est. $1,784,783, paving two aprons, Ladd Air Force Base, Inv. 57-8, ALASKA. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Aug. 14. CD 8/21, under LB.

† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, CA $469,949, White Alice installation at King Salmon Airport, Inv. 56-46, NAKNEK, ALASKA. U. S. Eng., Anchorage, Alaska.

PUERTO RICO

HEAVY CONSTRUCTION—BA

Puerto Rico, San Juan—BA 10/8—Puerto Rico Ports Auth., at office of Salvador V. Caro, exec. dir., Building 65, Isla Grande Airport, San Juan, constr. sand or rock fill dam in a dredged trench, placement of stabilizing fill over an area for future constr., vertical sand drains, etc. for Central Market Development. Plans deposit $25. Tippetts-Abbett-McCarthy-Stratton, 62 W. 47 St., New York, N. Y., engrs.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **VENEZUELA**—Ministry of P. Wks., Caracas, **Union de Contratistas**, Edificio Norte, Piso 9, Centro Simon Bolivar, Caracas, D. F., Venezuela, CA $1,938,713, 4½ mi. Avenue of Armed Forces, Caracas. Bids July 27.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲† **Oman, Faensworth**, Goysa, Madrid, Spain, LB $3,333,000, ammunition storage center, GEN-109, MORON, TORREJON AND ZARGOZA, SPAIN. Bureau Yards & Docks, Navy Dpt., 18 St. and Constitution Ave. N.W., Wash. 25, D. C., U.S.A. Bids Aug. 29. CD 8/21.

FOREIGN

BUILDINGS—BA

Iraq, Baghdad—HOUSES—BA 10/15—The Development Bd. and Ministry of Development, Baghdad, for completion of the Houses of Parliament of which the shell has been built. J. Brian Cooper, F.R.I.B.A., 38 Highfield Rd., Edgbaston, Birmingham 15, England, archt.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Arcata**—Arcata Water Dist., c/o Distr. Comr., Arcata, bond election Sept. 25, dam on Mad River at Ruth and water lines for servicing the area, near here. $12,000,000.

▲ **N. Y. Tonawanda**—Town, City Hall, trunk distr., lines and storage tank in Green Acres Village section, $2,000,000.

▲ **O., Toledo**—City, John McCarthy, mgr., City Hall, Six-Year Water Improvement Program:

9 mi. 78 in. line from Lake Erie intake to filtration plant, parallel present line, $4,821,000.

Expand Collins Park water filtration plant to double present 80 m.g.d. capacity to 160 m.g.d., $3,000,000.

12,000 ft. 24 in. water mains, Byrne Rd. from Nebraska to Glendale Aves., $290,000.

water department service bldg., $495,000.

replace old water mains in vicinity New York Ave. and Manhattan Blvd., $105,000.

WATER PROGRAM 1957

9,400 ft. 40 in. water mains Laskey and Burnham Rds., $430,000.

16,500 ft. 30, 24 and 16 in. water mains, Metzinger Rd., Benore Rd., Shoreland Ave. and Suder Ave., $440,000.

7,200 ft. 42 in. main, Laskey Rd., from Burnham to Jackman Rd., $345,000.

WATER PROGRAM 1958

12,000 lin. ft. 36 in. main, Laskey Rd. from Jackman to Secor, $400,000.

11,300 ft. 24 and 36 in. main on Laskey from Secor to Talmadge and Talmadge from Laskey to Sylvania, $350,000.

11,200 ft. 24 in. main in Talmadge from Sylvania Ave. to Bancroft St. and in Bancroft St. from Talmadge to Richards Rd., $270,000.

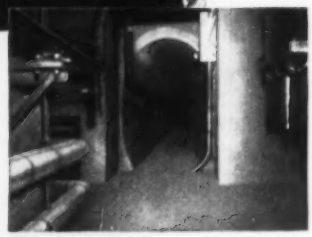
Tex., Monahans—City, City Hall, voted bonds Aug. 18, elevated water storage tank, $100,000; WW, mostly lines, $630,000. CD 8/2.

SEWERS, WASTE DISPOSAL

▲ **Conn., Darien**—Town, Town Hall, sewer extension to Middlesex Rd., Linda and Holly Lanes, $336,000; exten. sewage sys. to Noroton area, $700,000.

▲ **Conn., Milford**—Town, Town Hall, sanitary sewerage sys. Devon, River Cliff, Milford Point, $10,026,000; sanitary sewerage sys. Oyster River to Pond Point, Woodmont, Calf Pen, Beaver Brook Areas, $3,152,000; sewage treatment plant and outfall sewer, New Haven

(Continued on page 126)



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(Continued from page 124)

Ave., Gulf Point, $1,620,000. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs.

▲ Minn., Austin—City, J. H. Welland, clk., sewage disposal plant, $2,250,000. Greeley & Hansen, 220 South State St., Chicago, Ill., consult. engrs. CD 12/14.

▲ Mo., Sedalia—City, City Hall, sewerage sys. improv., $6,391,100. Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo., consult. engrs. CD 11/17.

BRIDGES

▲ MAINE—State Hy. Comn., State House, Augusta, Bath high-level approach to Carlton Bridge, widening roadway on bridge, $1,000,000. Construction in 1957.

STREETS AND ROADS

▲ ARKANSAS—State Hy. Dpt., State Capitol, Little Rock.

Cleveland Co.—resurf. 6.5 mi. Hy. 79 north and south of Saline River Bridge, $810,000.

Crittenden Co.—resurf., reinstating 16 mi. old hy. 21 to State highway sys. between Lake David and West Memphis, $250,000.

Faulkner Co.—wid'n., strengthening 3.75 mi. pavement on Hy. 65, Conway, $151,000.

Greene Co.—resurf. 9 mi. Hy. 34 from Delaplaine to Beech Grove, $270,000.

Pulaski Co.—dustproofing 1 mi. road from Wrightsville to Negro Boys Industrial School, $40,000.

Sebastian Co.—wid'n., and surf. Hy. 22, Fort Smith, $110,000.

▲ CALIFORNIA—State Div. Hys., 1120 N St., Sacramento,

Kern Co.—grading, paving, structures 1.4 mi. U. S. 99 from 0.6 mi. south of Kamoso Underpass to 0.8 mi. north incl. railroad separation structure on U. S. 99 and interchange with U. S. 466, $800,000.

Los Angeles Co.—grading, paving, structure for 8-lane Harbor Freeway 2.8 mi. from 0.2 mi. south of 124 St. to 88 St., $6,000,000.

grading, paving, structures 6-lane freeway 1.9 mi., Long Beach Freeway from 0.3 mi. south of Rosecrans Ave. to 0.4 mi. south of Imperial Hy., $2,750,000.

Orange Co.—grading, paving, 1.5 mi. structures to convert Santa Ana Freeway from 4-lane expressway to full 6-lane freeway from 10 St. in Buena Park to La Palma Ave. in Anaheim, $2,100,000.

grading, surf., structures to wid'n. existing 2 and 3 lane highway to 4 lanes divided 4 mi., Sign Rte. 18 U. S. 91 from Los Angeles Co. Line to Stanton Ave., $950,000.

Riverside Co.—grading, surf., structures 8.8 mi. 4-lane expressway Sign Rte. 71 from San Jacinto River to 1 mi. north of Alberhill, $2,100,000.

San Luis Obispo Co.—grading, paving, structures 3.1 mi. of 4-lane freeway on U. S. 101 from 2 mi. south of San Miguel to south boundary of Camp Roberts, $1,400,000.

Ventura Co.—grading, surf. structures 0.7 mi. on Sign Route 23 from Bulberson Road to Santa Clara River, $200,000.

▲ D. C., Wash.—D. C. Govt., Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C., Anacostia Freeway, $20,000,000, $3,000,000 appropriated; paving etc. Military Road, Georgia Ave. to 27 St. N. W., $3,400,000; sidewalk and alley work at various locations, $635,000; paving and repairing at various locations, $650,000; curb and gutter work at various locations, $915,000; resurf. at various locations, $915,000; paving east-west crossing at Soldiers Home, $2,200,000. CD 9/7/55.

EARTHWORK, WATERWAYS

† Arkansas—U. S. Eng., P. O. Box 867, Little Rock, Greere Ferry Dam site on Little Red River near Heber Springs, Cleburne Co., Total est. $750,000. No appropriation.

AIRPORTS

† Ark., Blytheville—AIR FORCE BASE—U. S. Eng., P. O. Box 867, Little Rock, operational and training facilities and maintenance facilities, Blytheville Air Force Base. $933,000. appropriated.

▲† Calif., Alameda—AIR STATION—Twelfth Naval Dist., San Bruno, aircraft maintenance facilities, Naval Air Station. $2,675,000 appropriated. CD 5/18.

▲† Calif., Chula Vista—AIR STATION—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, personnel facilities and utilities, Naval Auxiliary Air Station. $778,000 appropriated.

▲† Calif., El Toro—AIR STATION—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, aircraft maintenance facilities, administrative facilities, airfield pavements, storage facilities, ammunition storage facilities, medical facilities, training facilities, personnel facilities, operational facilities and utilities, Marine Corps Air Station. $6,863,000 appropriated.

▲† Calif., Miramar—NAVAL AIR STATION—Eleventh Naval District, Commandant, 937 Harbor Dr., San Diego, personnel facilities, operational facilities, training facilities, ordnance facilities and obstruction removal for flight clearance, Naval Air Station. $8,835,000 appropriated.

▲† Calif., Mojave—AIR STATION—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, aircraft maintenance facilities, airfield pavements, personnel facilities, training facilities, community facilities, fuel storage and dispensing facilities and utilities, Marine Corps Auxiliary Air Station. $12,556,000 appropriated.

▲† Calif., Oakland—RADAR CENTER—Civil Aeronautics Admin., Dpt. Commerce, 5651 W. Manchester, Los Angeles, radar center at Metropolitan Oakland International Airport, $1,000,000.

▲† Calif., San Diego—NAVAL AIR STATION—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, airfield pavements, ordnance and ammunition storage facilities, aircraft maintenance facilities, waterfront facilities, operational facilities, navigational aids Naval Air Station, North Island. $13,072,000 appropriated.

▲† Calif., Victorville—AIR FORCE BASE—U. S. Eng., 751 S. Figueroa St., Los Angeles, operational and training facilities, maintenance facilities, supply facilities, housing and community facilities, George Air Force Base. $3,144,000 appropriated.

▲† Fla., Jacksonville—NAVAL AIR STATION—Sixth Naval Dist., Charleston, S. C., aircraft maintenance facilities, personnel facilities, storage facilities, operational facilities, training facilites, community facilities and utilities, Cecil Naval Air Station. $4,052,000 appropriated.

▲† Fla., Sanford—NAVAL AIR STATION—P. Wks. Officer, Dpt. Navy, Sixth Naval Dist., Charleston, S. C., aircraft maintenance facilities, airfield pavements, personnel facilities and utilities, Naval Auxiliary Air Station. $6,926,000 appropriated.

▲† Ga., Brunswick—AIR STATION—Dist. P. Wks. Office, Bldg. No. 12, U. S. Naval Base, Charleston, S. C., airfield pavements, personnel facilities, aircraft maintenance facilities, training facilities, fuel pipe line and storage facilities, Glynco Naval Air Station. $4,003,000 appropriated.

▲† Ga., Dublin—AIR FORCE BASE—U. S. Eng., 200 E. St. Julian St., Savannah, operational and training facilities, maintenance facilities, utilities and ground improv., Dublin Air Force Base. $6,478,000 appropriated.

▲† Ind., Peru—AIR FORCE BASE—Ninth Naval Dist., Great Lakes Naval Training Station, Great Lakes, Ill., operational and training facilities, maintenance facilities, housing and community facilities, removal of hazard, Bunker Hill Air Force Base. $2,169,000 appropriated.

▲† Me., Brunswick—NAVAL AIR STATION—First Naval Dist., 495 Summer St., Boston, Mass., personnel facilities, airfield pavements, station maintenance facilities, community facilities, storage facilities, Naval Air Station, $3,738,000 appropriated. CD 10/6.

† N. J., Wrightstown—AIR TERMINAL—Dpt. of Army, 2635 Abbottsford Rd., Phila., Pa., plans by Gabriel Halperin & Assoc., 20 Vesey St., New York, N. Y., passenger terminal bldg. addn. at McGuire Air Force Base. $500,000. CD 8/31/55.

▲† N. M., Clovis—AIR BASE—U. S. Eng., Box 1538, Albuquerque, Clovis Air Force Base, operational and

(Continued on page 128)

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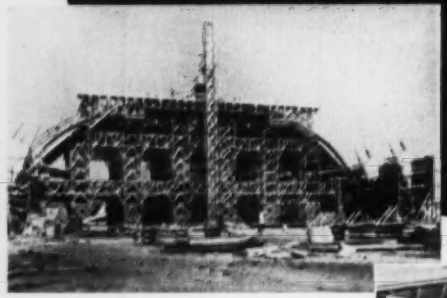

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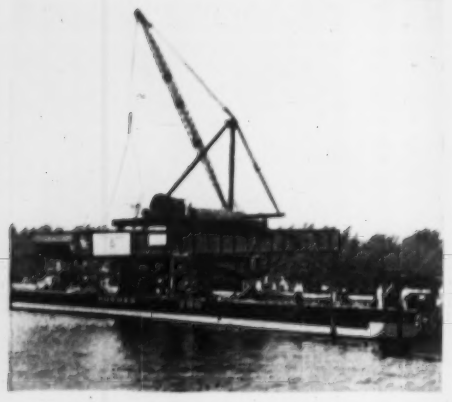

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(Continued from page 126)

training facilities, maintenance facilities, housing and community facilities, relocation of structure. $4,505,000 appropriated. CD 10/20.

▲† N. C., Edenton—AIR STATION—P. Wks. Office Fifth Naval Dist., Norfolk 11, Va., Naval Auxiliary Air Station; aircraft and station maintenance facilities airfield pavements, fuel dispensing facilities, operational facilities, administrative facilities, personnel facilities, communications facilities, community facilities and utilities. $13,926,000. CD 10/10.

▲† N. C., Fort Bragg—AIR BASE—U. S. Eng., 30E Customhouse, Wilmington, Pope Air Force Base, operational and training facilities, maintenance facilities. $1,106,000 appropriated. CD 9/16/55.

▲† N. C., Goldsboro—AIR BASE—U. S. Eng., 30E Customhouse, Wilmington, Seymour Johnson Air Force Base, operational and training facilities, maintenance facilities, supply facilities, hospital and medical facilities, administrative facilities, housing and community facilities. $6,637,000 appropriated. CD 9/16/55.

▲† R. I., Quonset Point—NAVAL AIR STATION—P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., Naval Air Station, aircraft maintenance facilities, navigational aids. $2,753,000 appropriated.

▲† S. C., Beaufort—AIR STATION—P. Wks. Officer, Dpt. Navy, Naval Base, Charleston, Marine Corps Auxiliary Air Station, aircraft and station maintenance facilities, administrative facilities, medical facilities, personnel facilities, training facilities, operational facilities, covered and cold storage facilities, community facilities, fuel dispensing facilities and utilities. $17,384,000 appropriated.

▲† S. C., Myrtle Beach—AIRPORT—U. S. Eng., 31 Customhouse, Charleston, Myrtle Beach Municipal Airport, operational and training facilities, maintenance facilities, hospital and medical facilities, housing and community facilities. $1,665,000 appropriated. CD 9/29/55.

▲† S. C., Sumter—AIR BASE—U. S. Eng., 31 Customhouse, Charleston, Shaw Air Force Base, operational and training facilities, maintenance facilities, housing and community facilities. $3,805,000 appropriated. CD 9/25/51.

†Tenn., Memphis—NAVAL AIR STATION—P. Wks. Officer, Dpt. Navy, Naval Base, Charleston, S. C., Naval Air Station, fuel storage facilities, aircraft maintenance facilities. $511,000 appropriated.

▲† Tenn., Smyrna—AIR BASE—U. S. Eng., 306 Federal Office Bldg., Nashville, Seward Air Force Base, operational and training facilities, maintenance facilities, utilities and ground imprvs. $1,583,000 appropriated.

▲† Va., Oceana—NAVAL AIR STATION—Fifth Naval Dist., U. S. Naval Base, Norfolk, Zone 11, Naval Air Station, aircraft maintenance facilities, personnel facilities, operational facilities, community facilities, training facilities, ordnance facilities, open storage facilities, security facilities, utilities and relocation of Coast Guard facilities. $5,286,000 appropriated. CD 10/12.

▲† Wash., Moses Lake—AIR FORCE BASE—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, operational and training facilities, housing and community facilities, utilities and ground imprvs. Larson Air Force Base. $1,111,000 appropriated.

▲ Wis., Kansasville—AIR FORCE BASE—U. S. Eng., 1217 P.O. and Customhouse, St. Paul 1, Minn., operational and training facilities, maintenance facilities, supply facilities, adminstrative facilities, housing and community facilities, utilities and ground imprvs., Richard Bong Air Force Base. $6,801,000 appropriated.

LATIN AMERICA

Mexico, Ciudad Valles—Sria. de Recurosos Hidraulicos, Mexico City, plans WW. $500,000.

Mexico, Mazatlan—AIRPORT—Sria. de Comunicaciones y Obras Publicsas, Mexico City, plans civil airport. $500,000.

Mexico, Mexico City—LABORATORIES—Establecimientos Mexicanos Colliere, P. de la Republica 43, Mexico City, pharmaceutical laboratories. $600,000. Francis Chilson, c/o owner, engr.

AMERICANS ABROAD

Syria, Damascus—Director General Hejaz Ry., Damascus, survey for railroad project to be made by Irex (International Resources Engineering & Exploration Group), 1413 K St., N.W. Wash., D. C., U. S. A.

FOREIGN

Java-Perusahaan Listrik Negara, Direski Konstruksi (Attn. Ir. Harjo Sudirdjo), Kemmenterian Perkerdjaan Umum, Djalan Hajam Wuruk 3, Djakarta, Indonesia, plans Djatilihur dam, near Purwakarta, West Java. Interested contractors are asked to send addresses to owner. Bids will be asked in 3-4 months.

PUBLIC BUILDINGS

Ala., Birmingham—SCHOOL—Jefferson Co. Bd. Educ. Plans by Van Keuren, Davis & Co., 3004 7th Ave. S., 2 story Junior High School on Kite Hill in Homewood. $500,000. CD 8/25/54.

▲† Ala., Fort Rucker—OPERATIONAL FACILITIES, etc.—U. S. Eng., 2301 Grant St., Mobile, operational facilities, maintenance facilities, training facilities, storage facilities, administrative facilities, trailer site facilities, and utilities. $7,300,000 appropriated.

▲† Ala., Huntsville—ARSENAL—U. S. Eng., 2301 Grant St., Mobile, Zone 7, Redstone Arsenal, maintenance facilities, training facilities, family housing and utilities. $6,159,000 appropriated. CD 6/18.

(Continued on page 131)

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gets job 21 miles from base and makes it pay...batches at job site with Noble-Mobile

Noble-Mobile at site of new Crown-Zellerbach plant, Antioch, Calif. 10" wheels dismounted for use on truck mixers. Supplier: H. W. "Heine" Gentry Co., Walnut Creek, Calif.

Hauled along highway like semi-trailer • Set up in one day—no field wiring, concrete footings or crane time required on base plant • Aggregates charged with front end loader, crane or conveyor • Bulk cement utilized . . . batched automatically • Excellent quality control • Maximum production from mixer trucks—short hauls, more yards per day • Production capacity 60 to 100 yards per hour • Covered by patents pending

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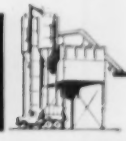

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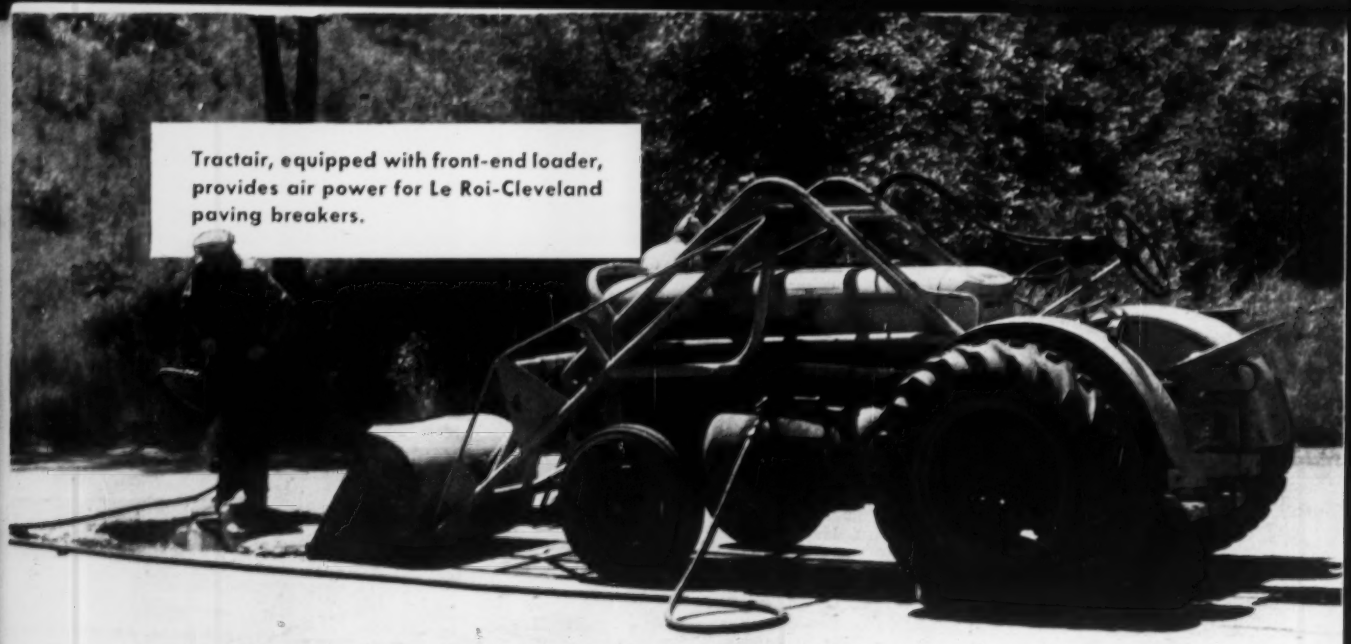
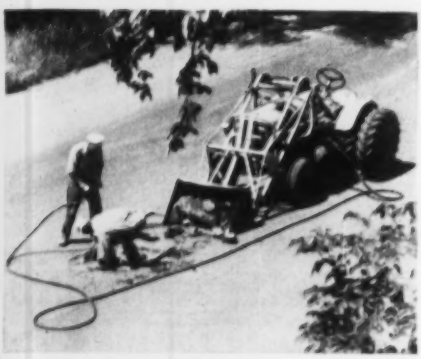


Tractair, equipped with front-end loader, provides air power for Le Roi-Cleveland paving breakers.

Combination Tractor-Compressor Unit Works 8-hour Day, All Year Long

One Le Roi Tractair (combination tractor-compressor unit) can do the work of several specialized machines — plus supplying 125-cfm air power for a wide variety of air tools. Because Tractair is a combination 42-hp wheel tractor and a dependable air compressor, here's what can happen on your jobs — in one day — using just one of the many Tractair attachments available:



Broken concrete is loaded out by the Tractair with front-end loader attachment.

Backfill blade easily replaces Tractair front-end loader bucket for light-grading work.

7:00 A. M. Tractair, equipped with a front-end loader, arrives at the job site. Le Roi-Cleveland pavement breaker powered by the Tractair's 125-cfm air compressor breaks concrete.

7:56 A. M. With the front-end loader attachment, the Tractair loads out broken concrete from the trench site.

8:39 A. M. Le Roi-Cleveland clay spades, powered by the Tractair compressor, trim up the excavation for pipe laying.

9:58 A. M. The operator drives the Tractair to another job to provide power for pumping out a water-filled trench.

11:00 A. M. Returning to the first job, the Tractair fills in the trench with its front-end loader.

11:30 A. M. The Tractair compressor provides air power for Le Roi-Cleveland tampers to compact the trench fill.

1:00 P. M. Using the front-end loader attachment, the Tractair loads out excess dirt into a truck.

1:20 P. M. The self-propelled Tractair proceeds to another job site and provides air power for rock drilling.

2:42 P. M. After rock has been blasted out, the Tractair 125-cfm air compressor provides air power for Le Roi-Cleveland breakers to trim up the hole.

4:05 P. M. With the crane boom on the front-end loader, the Tractair lifts and lowers heavy pipe into the trench.

4:45 P. M. The Tractair loads out debris to leave the work area clean and safe.

Yes, the Le Roi Tractair can give you performance like this around the clock — on all of your jobs. Applications are unlimited with Le Roi Tractair attachments. For example, the front-end loader attachment has many quick-change accessories — utility platform, fork lift, straight backfill blade, combination bucket and crane boom, crane lift, and several snow removal tools. Other attachments for the Le Roi Tractair are the backhoe, earth auger, rotary sweeper, backfill blade, snow blades, and many more.

Le Roi Division of Westinghouse Air Brake Co., Milwaukee 1, Wis. also manufactures portable and stationary air compressors, air tools, and heavy-duty engines. Write today for information about any of these products.

T-49

(Continued from page 128)

▲† Ariz., Fort Huachuca—HOUSING, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. troop housing, maintenance facilities, storage facilities, administrative facility and utilities, $6,586,000 appropriated.

▲† Calif., Barstow—SUPPLY CENTER—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, operational facilities, maintenance facilities, personnel facilities, administrative facilities and community facilities, Marine Corps Supply Center, $3,436,000 appropriated.

▲ Calif., Bellflower—SCHOOL—Bellflower School Dist., Bellflower, plans by Kistner, Wright & Wright, 1125 W. 6 St., Los Angeles, high school, $1,000,000. CD 6/20.

▲† Calif., Camp Pendleton—MARINE BASE—Eleventh Naval Dist. Commandant, 937 Harbor Dr., San Diego, utilities, boat basin facilities, Marine Corps Base, $3,429,000 appropriated.

▲† Calif., Fallbrook—AMMUNITION DEPOT—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, ammunition storage and ordnance facilities, Naval Ammunition Depot, $1,584,000 appropriated.

▲† Calif., Inyokern—TEST STATION—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, research and development facilities, aircraft maintenance facilities, airfield pavements and fuel storage and dispensing facilities, Naval Ordnance Test Station, China Lake, $6,028,000 appropriated.

▲† Calif., Long Beach—NAVAL STATION—Eleventh Naval Dist. Commandant, 937 Harbor Dr., San Diego, waterfront facilities, Naval Station, $42,256,000 appropriated.

▲ Calif., Los Angeles—HOSPITAL—Los Angeles Co., Hall of Records, $15,400,000 bond election Nov. 6, replacing county's Harbor Hospital, Torrance. CD 4/18.

▲† Calif., San Diego—RECRUIT DEPOT—Eleventh Naval Dist. Commandant, 937 Harbor Dr., San Diego, personnel facilities and community facilities, Marine Corps Recruit Depot, $1,679,000 appropriated. CD 1/8/51.

Calif., San Pablo—SCHOOL—San Pablo Elementary School Dist., 2707 Dover St., bond election Nov. 6, constr. school facilities, $500,000. CD 1/5.

▲ Calif., Santa Barbara—SCIENCE—University of California, Santa Barbara, plans by Jones & Emmons, 12248 Santa Monica Blvd., West Los Angeles, science bldg., Santa Barbara Campus, $1,260,000.

▲ Calif., Seal Beach—DEPOT—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, ordnance facilities, Naval Ammunition and Net Depot, $2,176,000 appropriated. CD 10/19, under Unclassified.

▲† Calif., Twenty-nine Palms—TRAINING CENTER—Eleventh Naval Dist. Commandant, 937 Harbor Dr., San Diego, community facilities, Marine Corps Training Center, $1,165,000 appropriated.

▲† Colo., Camp Carson—STORAGE, etc.—U. S. Eng., 1709 Jackson St., Omaha, Neb., storage facilities, administrative facilities, troop housing, training facilities, $3,253,000 appropriated.

▲† Colo., Pueblo—DEPOT—U. S. Eng., 1709 Jackson St., Omaha, Neb., maintenance facility, Pueblo Ordnance Depot, $2,142,000 appropriated. CD 9/21/51.

▲ Conn., Branford—SCHOOL—Town, plans by Keith S. Heine, 71 Oxford St., Hartford, high school, $1,300,000. J. Wesson Phelps, 23 Laurel St., consult. engr. CD 10/18.

▲ Conn., New Britain—HOUSING—State Pub. Wks. Dpt., 165 Capitol Ave., Hartford, plans by Kane & Fairchild, 734 Asylum Ave., Hartford, moderate rental housing, incl. 100 units, 4 & 5 units per bldg., States Rd. $1,210,000. CD 5/2.

▲ Conn., Norwalk—CIVIC CENTER, etc.—City, City Hall, civic center, veterans' memorial park, city hall, bandstand, health and welfare and police, fire dpt. bldgs., play area, $1,000,000. Henry J. Marquardt, Point Rd., Wilson Point, South Norwalk, consult. engr.

▲ Conn., Orange—SCHOOL—Town, Town Hall, elementary school, $1,000,000.

▲ Conn., Putnam—HOUSING—Putnam Housing Auth., City Hall, plans by Arthur E. Thomas, 28 Shetucket St., Norwich, 124-unit, 2 story, masonry housing, $1,741,176.

Conn., Watertown—SCHOOL—Town, Town Hall, high school, $900,000.

▲ Conn., Weston—SCHOOL—Town, Town Hall, high school, $1,300,000.

Conn., Wethersfield—SCHOOL—Town, Town Hall, plans by Jeter & Cook, 36 Pearl St., Hartford, high school addn. $700,000. CD 7/23.

▲† D. C., Fort McNair—ACADEMIC—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. academic bldgs. $4,111,000 appropriated.

▲† D. C., Wash.—LABORATORY—Dist. P. Wks. Office, Potomac Naval River Command, Naval Gun Factory, Wash., D. C., plans and specifications for research and development facilities, Naval Research Laboratory, $1,300,000 appropriated. CD 8/6/54.

▲† D. C., Wash.—ARMY MEDICAL CENTER—U. S. Eng., First and Douglas Sts. N. W., Zone 25, research and development facility and community facility, Walter Reed Army Medical Center, $4,209,000 appropriated. CD 10/16/52.

▲† Ga., Albany—SUPPLY CENTER—P. Wks. Office, Dpt. Navy, Naval Base, Charleston, S. C., storage facilities, personnel facilities, maintenance facilities, community facilities and utilities, Marine Corps Supply Center, $1,742,000 appropriated.

† Ga., Atlanta—DEPOT—U. S. Eng., 200 E. St. Julian St., Savannah, operational facilities and maintenance facilities, Atlanta General Depot, $832,000 appropriated. CD 10/4/51.

Idaho, Moscow—HOUSING UNITS—University of Idaho, Moscow, eight 2 story, 64-family housing unit bldgs., $550,000. Bids this summer. CD 8/15/54.

▲ Ind., Evansville—THERAPY CENTER—Wm. E. Clarkson, dir. P. Wks. & Supply, State House, Indianapolis, ward bldg., $684,000; imprvs. present bldgs.; Activity Therapy Center at Evansville State Hospital, $500,000.

▲ Ind., Fort Wayne—DORMITORIES, etc.—Wm. E. Clarkson, dir. Pub. Wks. & Supply, State House, Indianapolis, improvements at Ft. Wayne State Hospital: boys' dormitory, $2,200,000; girls' dormitory, $2,200,000; school bldg., $610,000; nursery, $750,000; medical and surgical bldg., $1,650,000; power plant, $600,000; improve present bldgs. Total est. $8,807,400. CD 4/20.

▲ Ind., Logansport—HOSPITAL—Wm. E. Clarkson, dir. P. Wks. & Supply, State House, Indianapolis, receiving bldg., $1,120,800; Activity Therapy bldg., $870,000; rehabilitate present bldgs., at Logansport State Hospital. CD 5/11/54.

▲ Ind., Madison—HOSPITAL—Wm. E. Clarkson, dir. P. Wks. & Supply, State House, Indianapolis, medical, surgical, and intensive treatment bldg., $2,100,000; Activity Therapy bldg., $545,000; imprvs. to present bldgs. at Madison State Hospital. CD 6/29/55.

Ind., New Castle—HOSPITAL—Wm. E. Clarkson, dir. P. Wks. & Supply, State House, Indianapolis, educational and recreational bldg., $757,425; imprvs. present bldgs., at New Castle State Hospital.

▲ Ind., Richmond—TREATMENT—Wm. E. Clarkson, dir. P. Wks. & Supply, State House, Indianapolis, female geriatrics bldg., $1,000,000; receiving and continuous treatment bldg., $1,227,900; imprvs. to present bldgs., at Richmond State Hospital.

▲ Iowa, Clinton—SCHOOLS—Bd. Educ., Clinton, $1,745,000 bond election Sept. 25, two high schools and an elementary school. Bonds defeated 3-17. McCann, Prout & Assoc., 440 Howes Bldg., archts. CD 1/26.

▲ Kan., Wichita—SCHOOLS—Bd. Educ., 428 S. Broadway, voted $12,500,000 bonds Aug. 7, schools. CD 11/10/54.

▲† Ky., Fort Knox—COLD STORAGE, etc.—U. S. Eng., 830 W. Broadway, Louisville, plans by Frankel & Curtis, 130 Barr St., Lexington, 1 story, 10,319 sq. ft. cold storage plant addn. and parking area, $1,698,000 appropriated. CD 8/30/55.

▲† Md., Bainbridge—TRAINING CENTER—Dist. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., personnel facilities, training facilities and utilities, Naval Training Center, $6,569,000 appropriated. CD 3/27/51.

(Continued on page 135)

Where floor space is a problem — or where stacking and paralleling is indicated — the new Miller SRH LOWBOY is the engineered-to-your-needs answer! This dc rectifier type welder is available in three models with 60% duty cycle ratings of 200, 300 and 400 amperes. Combining compactness with quiet operation, minimum arc blow, top electrical efficiency and waterproof construction, the LOWBOY is another Miller first that "figures."

Upright SR models to 600 amperes at 40 volts with 750 amperes maximum output; Duplex units up to 1200 amperes, 40 volts, 1500 amperes maximum.

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New

MILLER ARCWELD welding electrodes are worthy of the MILLER name and reputation. Ask your distributor for some ... you'll like the job they do.

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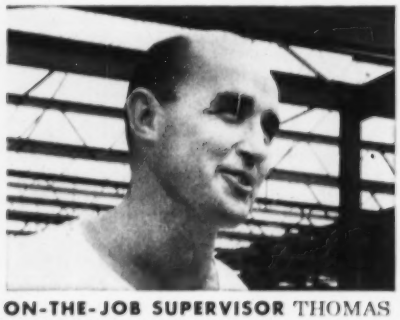
15 Acres of TUFCOR® roof

Old buildings, rising volume and congested sales areas can hog-tie a firm's customer service—but it won't happen at Kroger! Spearheading the company's vast expansion program are 3 new warehouses in Little Rock, Ark., Shreveport, La.,* and Ft. Wayne, Ind., 660,000 sq. ft. of new buildings—all covered with tough-temper Tufcor steel deck and lightweight, insulating concrete fill. Why Tufcor? Because Tufcor gives insulating concrete a strong, *permanent* base . . . weighs up to 7 lbs. per sq. ft. less than other decking

Read what Kroger's building team says about superior TUFCOR performance

ENGINEER LEWIS W. HIXSON of Hixson, Tarter & Associates, Cincinnati (designers of Kroger warehouses) says, "Low cost per square foot and dead weight savings definitely affected the selection of Tufcor over other poured-in-place decks. Because much of the Kroger buildings will be refrigerated, the high insulation value of a Tufcor-Insulating Concrete roof system also offered a big advantage, helped save $5,000 on the Little Rock job, alone!"

CONTRACTOR WERNER KNOOP of the Baldwin Co. (general contractors for the Kroger warehouse in Little Rock) says, "We're very pleased that the Kroger Company decided to use Tufcor steel decking. It has such surprising strength in comparison with most decking. It arrived on time, was cut the way we wanted it and helped us to stay on schedule. I'm very much impressed with the speed of Tufcor placing!"



ON-THE-JOB SUPERVISOR THOMAS MULROY says, "Tufcor sheets really go down fast. With two crews, we placed about 15,000 square feet of decking a day. The men are more at ease walking around on Tufcor, too. Those sheets give stronger support to workers, concrete buggies and stacked building materials than some other types of decking. There's no danger of falling through to the ground below—and the men know it!"

IN LITTLE ROCK, workmen placed *and welded* 8200 sq. ft. of Tufcor in 3 hours . . . or 45 sq. ft. per minute! Each sheet covers about 32 sq. ft., fits snugly in place to provide an immediate, safe working platform.

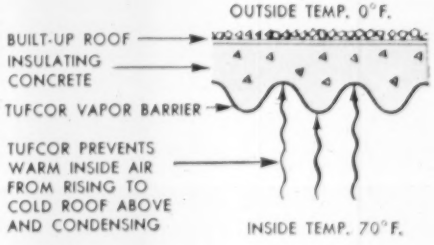
PLACEMENT of lightweight insulating concrete on Tufcor steel decking is a fast operation. The result is a rigid, *permanent* slab with low dead load, high insulating value and unsurpassed strength.

tops new Kroger® warehouses

. . . is easy to place, saves on framework and fill, guards against fire. In fact, many insurors and codes insist on sprinklers every 120 sq. ft. when ordinary decking is used—but only every 130 sq. ft. with fire-resistant Tufcor! By saving on sprinklers and insulation, Tufcor cut $6,275 off the Little Rock bid price . . . $12,500 in Shreveport! Like to save thousands of dollars on your next job? For more information, estimates or costs on your building plan, consult Granco home or district office, Attention: Dept. E-64.

**For Child's Food Stores, Inc., a Kroger associated company*

A POSITIVE VAPOR BARRIER, TOO!


OUTSIDE TEMP. 0°F.
BUILT-UP ROOF
INSULATING CONCRETE
TUFCOR VAPOR BARRIER
TUFCOR PREVENTS WARM INSIDE AIR FROM RISING TO COLD ROOF ABOVE AND CONDENSING
INSIDE TEMP. 70°F.

While water vapor penetrates porous roof decks, it does *not* penetrate Tufcor steel decking. Authoritative lab tests show Tufcor *stays* at room temperature, *stays dry*, acts as an effective vapor barrier to prevent moisture from condensing on the cold underside of the built-up roof. This vapor barrier maintains insulating properties, actually saves *thousands* of dollars a year in fuel!

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MANITOWOC 1-YD. 1600
MORE MACHINE FOR YOUR DOLLAR!
Outclasses comparable rigs in every ...important performance feature

	Manitowoc 1-yd. 1600	Competitive 1-yd. Machines					
		A	B	C	D	E	F
Shovel Boom	22'6"	21'	21'	20'	21'	21'6"	21'
Crane Boom	45'	40'	40'	35'	40'	40'	30'
Trench Hoe Boom	22'	24'	21'	20'	20'	24'	19'
Air Controls Available	YES	NO	NO	NO	NO	NO	NO
Weights (in lbs.) Shovel	79,500	63,325	54,670	53,500	57,750	61,000	62,850
Crane	70,300	54,870	53,000	53,400	53,950	53,000	54,300
Dragline	70,580	55,070	53,725	51,700	53,600	53,000	54,100
Trench Hoe	75,415	62,625	52,430	62,000	53,400	61,000	60,400
Rated Capacity at 12' Radius with 45' Boom (Pounds capacity)	40,000	39,000	35,700	36,200	36,500	40,000	34,600
Average Price Per Pound	44c	53c	55c	51c	56c	58c	54c

You get more for your money with a Manitowoc Model 1600. No other 1-yd. unit in the field offers as much in quality features, gross weight and actual price per pound. Here's a one yard machine with the speed and guts to outperform many 1¼ and 1½-yd. units.

Simply designed, with only 13 gears and pinions assures more useable power from every unit of horsepower; a real heavy weight, with weight where weight is needed; easier maintenance with less downtime; torque converter available for smooth power, precise load handling; completely *self-removable* counterweight (12,000 lbs.) speeds transport between jobs; large, wide crawlers and roller path increase stability; rugged construction throughout keeps machine on the job.

Compare the outstanding advantages of the 1600 with ordinary 1-yd. rigs — contact your Manitowoc distributor for the complete story.

MANITOWOC ENGINEERING CORP., Manitowoc, Wis.

MANITOWOC
SHOVELS 1-5½ YD. Speedcrane CRANES 20-100 TON

(Continued from page 131)

▲ Md., College Park—BUSINESS ADMINISTRATION COLLEGE—State Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, plans by E. Wilson Booth, Salisbury, brick, limestone trim business administration college bldg., University of Maryland. $1,300,000.

† Md., Edgewood—ARMY CHEMICAL CENTER—U. S. Eng., 24 St. and Maryland Ave., Baltimore, Zone 18, troop housing, community facility and operational facility, Army Chemical Center. $889,000 appropriated. CD 12/9/54.

▲ Md., Silver Spring—HOSPITAL—Montgomery Co. Council, Silver Spring Hospital Assoc., Rockville, bond election Nov. 6, hospital, Forest Glen Rd. and Georgia Ave., $3,000,000. White, Noakes & Neubauer, 1145 19th St. N.W., Wash., D. C., archts. CD 4/4.

▲ Mass., Chelmsford—SCHOOL—Town, c/o Supt. Schools, 50 Billerica St., plans by Rich & Tucker Assoc., 45 Newbury St., Boston, high school, North Rd. and Old Westford Rd., $2,000,000. CD 1/5.

† Mass., Hingham—AMMUNITION DEPOT—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, ammunition storage and ordnance facilities, Naval Ammunition Depot. $993,000 appropriated.

Mich., Grand Haven—COUNTY BLDGS.—Bd. Supervs. Ottawa Co., Grand Haven, approved tax increase for county bldgs., jail, branch court house. $680,000. CD 7/16.

▲ Mich., St. Clair Shores—SCHOOLS—City, Lake Shore School Dist., 23700 Mack Ave., bond election Oct. 1, high school addn., two elementary schools, $2,000,000. CD 8/21.

Mich., Harper Woods—CIVIC CENTER—City, Marie T. Baron, Clk., bond election Nov. 6, civic center, city hall, police and fire station, public works garage, $590,000. CD 3/15.

▲ Miss., Jackson—DORMITORIES—University of Mississippi, men's dormitory and women's dormitory, 5 apartment bldgs., $1,300,000.

Neb., Schuyler—POWER PLANT—City, City Hall, power plant expansion. $979,000. Lutz & May, Finance Bldg., Kansas City, Mo., consult. engrs. CD 2/27/53.

▲† N. J., Earle—AMMUNITION DEPOT—Dist. P. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York 7, N. Y., ordnance facilities, Naval Ammunition Depot. $600,000.

▲ N. J., Hawthorne—SCHOOL—Bd. Educ., Borough of Hawthorne, Hawthorne, plans by Neil Greydanus, 157 Cedar Ave., high school modernization and addn. $3,000,000.

▲ N. J., Morristown—PARKING RAMP—Town of Morristown Parking Authority, erecting 2 story parking ramp on Maple Ave., $1,000,000. Ramp Building Corp., 320 Park Ave., New York, N. Y., consult. engrs.

▲ N. J., Westfield—SCHOOL—Bd. Educ., Westfield, plans by Frederick A. Eisasser, 2015 Morris Ave., Unionville, Junior High School $2,500,000. CD 3/29.

▲ N. M., Lovington—COURTHOUSE—Lea Co., c/o Comrs. Court, plans by Geo. R. Graves, 618 S. Turner St., Hobbs, courthouse. $1,200,000.

▲† N. Y., Fort Totten—HOUSING, etc.—U. S. Eng., 111 E. 16 St., New York, Zone 3, troop housing, storage facilities and utilities, $1,212,000.

▲ N. Y., New York—SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, Zone 1, P. S. 138, Pugsley and Olmstead Aves., Virgil St. and Lafayette Ave., E-775. $2,095,450.

▲ N. Y., Nyack—SCHOOL—Bd. Educ. plans by Fulmer & Bowers, 341 Nassau St., Princeton, N. J., Junior High School. $1,500,000.

O., Perrysburg—SCHOOL—Bd. Educ. plans by Munger, Munger & Assoc., Natl. Bank Bldg., Toledo, grade school, gym addn. to high school. $800,000. CD 5/11.

▲ Pa., Pittsburgh—APARTMENTS—Pittsburgh Housing Auth., 200 Ross St., 7 to 10 story, elevator tower apartments, (1) Garfield Hill; (2) Rose St. at Kirkpatrick and at Devilliers. $11,000,000. CD 5/29/52.

▲ Tex., Aldine—SCHOOLS—Aldine Ind. School Dist., voted bonds Aug. 18, elementary school (Negro), $675,000; high school and elementary addn., $400,000; high school addn., $370,000. CD 8/15.

▲ Tex., Dallas—SCHOOL—Dallas Ind. School Dist., 3700 Ross St., plans by Adams & Adams, 518 W. Davis St., Sequoyah Junior High School; Bikers and Greenleaf Sts. $1,000,000. CD 12/15/54.

Tex., Houston—LIBRARY—City, City Hall, plans by Louis A. Glover, 3116 Austin St., 5 story central library addn. $500,000. CD 2/2.

Tex., Waco—SCHOOL—Waco Ind. School Dist., 3420 North Waco Dr., plans by Spicer, Bush & Witt, 2125 Austin Ave., Austin, Lake Air Junior High School. $870,000. Spicer, Bush & Witt, 1225 Austin Ave., and Randell, Cowan & Love, 303 Ft. Worth Natl. Bank Bldg., Ft. Worth, consult. engrs. CD 11/9.

▲† Va., Quantico—MARINE CORPS SCHOOLS—P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., Marine Corps Schools, training facilities, ammunition storage and ordnance facilities, community facilities and utilities. $2,178,000.

▲† Wash., Bangor—AMMUNITION DEPOT—Thirteenth Naval District, 1611 W. Wheeler St., Seattle, Wash., ordnance facilities, Naval Ammunition Depot. $1,100,000 appropriated.

▲† Wash., Fort Lewis—COMMUNITY FACILITIES, etc.—U. S. Eng., 4735 E. Marginal Way, Seattle, community facilities, training facilities, maintenance facilities, family housing, utilities. $3,022,000 appropriated.

▲ Wis., Milwaukee—MUSEUM—Public Museum Bd., 618 W. Wisconsin Ave., referendum Oct. 6, on bond issue public museum bldg. $7,540,000. Eschweiler & Eschweiler, 720 E. Mason St., archts. CD 5/27/48.

▲ Wis., Milwaukee—OFFICE—State Bldg. Comn., State Capitol, Madison, plans by Roger C. Kirchhoff, state archt., state office bldg. $3,000,000.

▲ Wis., Wauwatosa—SCHOOLS—Bd. Educ., 1752 Wauwatosa Ave., Senior High School addn. and alterations, $450,000; plans by Mark F. Pfaller Assocs., 7613 W. State St., Lincoln Elementary School addn. and alterations, $350,000; plans by Brust & Brust, 135 W. Wells St., Milwaukee, Underwood Elementary School addn. and alterations, $450,000; plans by Ebling Plunkett & Keymar, 1220 N. Milwaukee St., Milwaukee, Madison Elementary School, 1st unit, $500,000.

Wyo., Laramie—STUDENT UNION—University of Wyoming, Campus, Laramie, 40,000 sq. ft. student union bldg. addn. $665,000. CD 12/12/52.

▲ Man., Winnipeg—OFFICE—Winnipeg Hydro-Electric System, Winnipeg, plans by Green, Blankstein, Russell & Assocs., 222 Osborne Ave., office bldg., Notre Dame and Weston Aves. $1,200,000. CD 8/17.

Ont., Kingston—FEDERAL—Dpt. P. Wks., Hunter Bldg., Ottawa, plans by Drevor & Smith, 81 Brock St., 3 story, bsmt., 73x364 ft. granite, limestone federal Bldg., Clarence St. $500,000. McGregor, Anderson & Beynon, 2792 Yonge St., Toronto, electrical engrs. CD 7/22/55.

COMMERCIAL BUILDINGS

Calif., Anaheim—BOWLING ALLEY—Orange Crest Corp., Fullerton, plans by D. A. Rambery, 2015 N. Main St., Santa Ana, La Palma Lanes Bowling Alley, La Palma and Marginolar Sts. $600,000. Reagan & Tebault, 2027 N. Main St., Santa Ana, consult. engrs.

▲ Calif., Hollywood—APARTMENT—Tishman Realty & Constr. Co., 460 Park Ave., New York, N. Y., plans by Victor Gruen Assoc., 135 S. Doheny Bldg., Los Angeles, 12 story apartment. $10,000,000.

▲ Calif., San Francisco—AIRLINE BUS TERMINAL—Barrett Terminals, Inc., c/o Frank Trabucco & Lewis Hurlbut, archts., 355 Stockton St., airline bus terminal. $2,000,000.

▲ Calif., Santa Rosa—SHOPPING CENTER—C. Carniglia & Son, 461 College Ave., 15-20 store shopping center, Mendocino Ave. $1,000,000.

Colo., Colorado Springs—HOUSE—City, City Hall, 1 story summit house on Pikes Peak Summit. $500,000. Edwin A. Francis, Carlisle B. Guy, Mining Exchange Bldg., consult. engrs. CD 4/13/49.

Colo., La Junta—HOSPITAL—Mennonite Hospital, La Junta, plans by Kellogg & Sayer, engrs.-archts., 1480 Clarkson, Denver, hospital addn., alterations, incl. nursing home, chapel, addn. to rehabilitation center and remodeling existing facilities. $600,000.

▲ Conn., Bloomfield—HOUSING—Empire Builders, Inc., Fernbell Lane, West Hartford, 150-house development, Addison St. $2,100,000.

▲ Conn., Plainville—HOUSE DEVELOPMENT—Irving Sherman, 152 French St., Forestville, 150 house development, incl. 4 streets and storm sewerage sys., Shuttle Meadow. $2,425,000.

▲ Conn., West Haven—HOUSE DEVELOPMENT—Housatonic Development Corp., Meloy Rd., 300-house development, Milhaven Heights, Meloy Rd. $3,000,000. John F. Lynch, 412 Campbell Ave., consult. engr.

▲ Conn., Windsor Locks—HOUSE DEVELOPMENT—Empire Builders, Inc., Fernbell Lane, West Hartford, 130 house development, West St. $1,885,000.

▲ D. C., Wash.—OFFICE—Hod Carriers' Bldg. and Common Laborers' Union of America, 821 15th St. N.W., plans by Eggers & Higgins, 100 E. 42nd St., New York, N. Y., 8 story, limestone, marble office bldg. 16th and Eye Sts. N.W. $2,500,000.

▲ Ill., Chicago—PARKING GARAGE, etc.—Gale & Epstein, 231 S. LaSalle St., plans by Bruyn & Bryant, Inc., 322 W. Washington Blvd., 8 story, bsmt., brick, parking garage and store bldg., 23-32 S. Clark St. $1,500,000. Robert E. Hattis, 225 W. Jackson Blvd., consult. engr.

▲ Ill., Chicago—OFFICE—Mutual Trust Life Insurance Co., 135 S. LaSalle St., plans by Perkins & Will, 309 W. Jackson Blvd., 6 story office bldg., Wacker Dr. and Monroe St. $2,500,000. CD 1/10.

Ill., River Forest—APARTMENTS—Owner, c/o Howard Kessler & Assoc., archts., 845 Chicago Ave., Evanston, 5 story, 64 unit, brick and stone trim, bsmnt., 2 apartment bldgs., North Ave. and Williams St. $800,000.

▲ Ind., Indianapolis—HOSPITAL—Wm. E. Clarkson, Indiana Dir. P. Wks. & Supply, State House, women's bldg., $1,719,422; employees quarters, $500,000; general medical and surgical bldg., $1,602,900; intensive treatment bldg., $2,300,000, improve present bldgs., at Central State Hospital. CD 6/29/55.

▲ Ind., Kokomo—SHOPPING CENTER—Donald Shanedling c/o Joe Goldstine & Son, Strauss Bldg., Fort Wayne, shopping center, covering 240,000 sq. ft. on 40-acre tract on US 31 by pass near new Chrysler transmission plant. $3,000,000.

▲ Iowa, Davenport—SCHOOL—Catholic Parishes of Davenport c/o Sacred Heart Cathedral, plans by W. F. Bernbrock, 1630 5th Ave., Moline, Ill., Assumption High School. $2,000,000. CD 3/1.

▲ Iowa, Waterloo—SHOPPING CENTER—American Shopping Centers, 1801 Nicollet Ave., Minneapolis, Minn., shopping center between Waterloo and Cedar Falls, on Highway 216, 40 or more stores. $10,000,000.

▲ Ky., Louisville—HOTEL—Sheraton Hotels, Inc., 470 Atlantic Ave., Boston, Mass., alterations and renovations of Sheraton-Sulbach Hotel, 4th and Walnut Sts., $1,100,000.

▲ Md., Elkton—SHOPPING CENTER—Ensingler & Dooley, 2604 K St. N.W., Wash., D. C., plans by Fon Montgomery, 8641 Colesville Rd., Silver Spring, Elkton Regional Shopping Center to be built in 3 stages. $2,800,000.

▲ Mich., Pleasant Ridge—ADMINISTRATION—Hall & Young, Inc., 4082 W. Maple, Birmingham, aluminum professional and administration bldg., Woodward Ave. between Poplar and Millington Sts., $1,000,000.

▲ Minn., Bloomington (P. O. Minneapolis)—COURT—Hobby Courts, Inc., 620 Roanoke Bldg., Minneapolis, J. Carnes, 9133 Poplar Bridge Rd., plans by Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, constr. "Hobby Court" bldg., east of Penn. Ave. S. and between 80th and 81st Sts., $1,200,000. CD 8/21.

▲ N. Y., Huntington—SHOPPING CENTER—Abraham & Straus, 420 Fulton St., Brooklyn, Zone 1, shopping center, 45-acre tract, Rte. 110 between Jericho Turnpike and Northern State Parkway formerly Walt Whitman Shopping Center. $5,000,000. Previous project abandoned. CD 2/14, under Peter Doelger, Inc., as owner.

▲ N. Y., New York—HOSPITAL—Montefiore Hospital, 210 St. and Bainbridge Ave., plans by Schuman & Lichtenstein, 369 Lexington Ave., Zone 17, 7 story hospital for Mental Diseases. $2,000,000.

N. C., Raleigh—CHURCH—Edenton Street Methodist Church, 228 W. Edenton, Dr. Howard Powell, pastor, plans by Charles W. Dairs, 709 W. Johnson St., rebuilding church. $500,000. A. Hensel Fink, 1701 Arch St., Phila., Pa., consult. engr. CD 8/13.

▲ O., Akron—HOUSES—Security Realty Co., 262 E. Exchange St., 38 homes, two new Streets, and extension of third on 34-acre site abutting Portage Country Club, development to be known as Fairway Estates, $1,500,000.

▲ O., Boardman—OFFICE—Youngstown Sheet & Tube Co., Stambaugh Bldg., Youngstown, plans by Garfield, Harris, Robinson & Schafer, 1740 E. 12 St., Cleveland, 5 story, 183,000 sq. ft., air-conditioned office bldg. with escalators between floors, elevators on 52 acre site. $1,000,000.

▲ O., Cleveland Heights—HIGH SCHOOL—Lutheran Bd. Educ., 2648 Prospect Ave., Cleveland, Zone 15, plans by Ward & Conrad, Hanna Bldg., Cleveland, Zone 15, 2 story, brick high school. $1,000,000.

▲ O., Rocky River—HIGH SCHOOL—Lutheran Bd. Educ., 2648 Prospect Ave., Cleveland, Zone 15, plans by Ward & Conrad, Hanna Bldg., Cleveland, Zone 15, 2 story, brick high school. $1,000,000.

▲ Tex., San Antonio—HOSPITAL—Southwest Tex. Methodist Hospital Bd., Leland S. Austin, chn., 515 Sutton St., plans by Phelps & DeWees & Simmons, 342 W. Woodlawn, San Antonio, and Page, Southerland & Page, 602 West Ave., Austin, methodist hospital in medical hospital center. $5,500,000. CD 6/7/54.

▲ Wis., Milwaukee—HOSPITAL—Froedert Enterprises, Inc., 735 N. Water St., plans by Grassold, Johnson & Assocs., 734 N. Jefferson St., Zone 2, hospital. $3,000,000. CD 3/3/55.

▲ Wis., West Allis—HOSPITAL—West Allis Memorial Hospital Assoc., plans by Darby, Rogner & Assoc., 759 N. Milwaukee St., Milwaukee, hospital. $5,000,000. CD 8/3/55.

▲ Alta., St. Albert (near Edmonton)—HOUSING—St. Albert Development Ltd., 2129 33rd Ave., Calgary, plans by Makale, Hemmingway & Laubenthal, Edmonton, 930 housing units, on 230 acre site, northwest of Edmonton. $1,500,000.

Que., Montreal—HOUSING—Dubord & Frere Ltee., 1226 St. Catherine St. W., housing, 40 bungalows, Farm 63-1, St. Vincent De Paul, suburban Montreal. $500,000.

Que., Sept. Isles—COMMERCIAL—Seven Islands Shopping Center Corp., 5210 Van Horne Ave., Montreal, 2 story, bsmnt., "T" shaped 25,000 sq. ft. masonry walls, commercial bldg., containing bank and offices. $750,000. Bank of Montreal, Simpson Sears Ltd., Sun Life Assurance Co. Canada, F. W. Woolworth Ltd., tenants.

INDUSTRIAL BUILDINGS

▲ Conn., Greenwich—LABORATORY—American Machine & Fdry. Co., 261 Madison Ave., New York, N. Y., experimental laboratory, industrial plant, offices, King St., near Greenwich Airport. $2,000,000.

▲ Conn., New Haven—WAREHOUSE—I. Hershman & Co., Inc., 153 Minor St., plans by Jacob Weinstein, 100 Lorain Ave., 200,000 sq. ft. steel warehouse, for paper stock, conveyors to be built in. $1,500,000.

▲ Fla., Pensacola—PLANT—American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y., plant to produce Creslan, a textile fiber. $27,000,000.

Ga., East Point—WAREHOUSE—Armco Drainage & Metal Products, Inc., 60,000 sq. ft. standard prefabricated steel warehouse, plant office and mfg. areas, parking area and railroad spur. $500,000.

▲ Ill., Northbrook—FACTORY—General Binding Corp., 812 W. Belmont Ave., Chicago, plans by Friedman, Alschuler & Sincere, 223 W. Jackson Blvd., Chicago, factory and paving, between Eden and Skokie Hy., S. of Dundee Rd. $1,000,000.

▲ Mich., Ludington—PLANT—Dow Chemical Co., Midland, plant to produce Type B catalyst. $2,000,000.

▲ Minn., Breckenridge—PLANT—Spencer Kellogg & Sons, Niagara Sq., Buffalo, N. Y., soybean and flax processing plant, incl., 2,500,000 bu. elevator, $5,000,000.

▲ Minn., Fergus Falls—POWER PLANT ADDN.—Otter Tail Power Co., C. G. Wright, pres., Fergus Falls,

Hoot Lake Steam plant addn.; 50,000 k.w. generating unit. $10,000,000. Bids next spring.

▲ **N. J., East Paterson**—INDUSTRIAL—Home Owners Land Co., 507 Boulevard, plans by Bernard Hersh, 507 Boulevard, 1 story, 60x100 industrial bldg. as a speculative project for rent. $1,500,000.

N. J., Hackensack—PLANT—Galler 7-UP Bottling Corp., 229 Grant St., Hoboken, plans by Lester Cohen, 234 Clinton Pl., 60,000 sq. ft. plant, Polify Rd. and Newman Sts., to which Bottling Corp. will remove its offices upon completion. $500,000.

▲ **N. J., Palisades Park**—WAREHOUSE, etc.—S. A. Schonbrunn Co., Inc., 77 Water St., New York, N. Y., plans by Pomerance & Breines, 33 W. 46 St., New York, N. Y., 100,000 sq. ft. warehouse and office for roasting and packaging coffee. Over $2,000,000. CD 5/54.

▲ **N. Y., Niagara Falls**—POWER PLANT—Niagara Mohawk Power Co., 300 Erie Blvd., W., Syracuse, Zone 2, restoring Schoellkopfes Power Plant; four generators will be installed in 1956, the remainder in 1957. $4,000,000.

▲ **O., Brook Park**—PLANT—Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, tire retreading plant, east of company's present warehouse. $2,000,000. CD 3/30/54.

▲ **O., Cleveland**—PLANT—Republic Steel Corp., 3175 Independence Ave., electrolytic plating plant. $4,500,000.

▲ **O., Greenville**—FACTORY—Corning Glass Works, Walnut St., Corning, N. Y., 265,000 sq. ft. factory-glass mfg. plant. $2,000,000.

Okla., Midwest City—PERSHING EXCHANGE—Southwestern Bell Telephone Co., 405 N. Broadway, Oklahoma City, plans by Bailey & Bozalis, Colcord Bldg., Oklahoma City, addn. to Pershing Exchange. $500,000.

Okla., Oklahoma City—WINDSOR EXCHANGE—South Western Bell Telephone Co., 405 N. Broadway, plans by Sorey, Hill & Sorey, 809 NW 36th St., addn. to Windsor Exchange at NW 23rd and Portland Sts. $535,000.

▲ **Tex., Denison**—PLANT, etc.—Johns-Manville Corp., c/o Howard W. Allen, 22 E. 40 St., New York, N. Y., asbestos-cement pipe mfg. plant, $10,000,000; storage or warehousing. $250,000. 400-acre site, north of here.

▲ **Tex., Longview**—REFINERY PLANT—Premier Oil Refining Co., refinery expansion, Catalytic unit. $1,250,000.

▲ **Alaska, Anchorage**—ATOMIC POWER PLANT—Chugach Electric Assn., Anchorage, and Nuclear Development Corp., 5 New St., White Plains, N. Y., 10,000 electrical kw capacity atomic power plant. $18,000,000.

▲ **Alta., Fort Fitzgerald**—WOOD MILL—Denney Logging Co., E. H., Essex, resident mgr.; Fort Fitzgerald, wood mill project, Wood Buffalo Park, sawmill, plywood mill. $2,000,000.

▲ **B. C., Vancouver**—WAREHOUSE—Canada Safeway Ltd., 313 Pacific Ave., Winnipeg, Man., warehouse for grocery chain in Vancouver area. $1,000,000.

▲ **Ont., Sturgeon Falls**—PULP MILL—Abitibi Power & Paper Co. Ltd., 408 University Ave., Toronto, pulp mill to produce "Platewood", a lumber substitute. $3,000,000.

UNCLASSIFIED

▲† **Calif., Coronado**—AMPHIBIOUS BASE—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, training facilities, personnel facilities, utilities, Naval Amphibious Base, $5,660,000 appropriated.

▲† **Calif., Fort Hueneme**—BATTALION CENTER—Eleventh Naval Dist., Commandant, 937 Harbor Dr., San Diego, replacement of wharf and storage facilities, Naval Construction Battalion Center. $2,581,000 appropriated. CD 10/11.

▲† **Calif., Long Beach**—NAVAL SHIPYARD IMPRVS—Eleventh Naval Dist., Commandant, 9737 Harbor Dr., San Diego, facilities for remedying effects of ground subsidence and waterfront facilities, Naval Shipyard, $5,984,000 appropriated.

▲† **Calif., San Francisco**—COMMUNICATION STATION—Dist. P. Wks. Office, Twelfth Naval Dist., San Bruno, communications facilities and personnel facilities, Naval Communication station. $2,029,000 appropriated.

▲† **Calif., San Francisco**—CONTROLLING FACILITIES etc.—Pub. Wks. Office, 12th Naval Dist., San Bruno, plans by Myron C. Gould, Assoc., 414 Mason St., control link facilities, communications center, mess hall barracks, at Naval Communications Center. $1,100,000. CD 8/28.

▲† **Calif., San Francisco**—NAVAL SHIPYARD IMPRVS—Dist. P. Wks. Office, Twelfth Naval Dist., San Bruno, plans and specifications for drydock facilities, Naval Shipyard, $1,300,000 appropriated.

† **Fla., Key West**—UTILITIES—P. Wks. Office, Dpt. Navy, Naval Base, Charleston, S. C., utilities, Naval Station, $927,000 appropriated.

▲ **Ind., Terre Haute**—COAL MINE, etc.—Ayshire Collieries Corp., Big 4 Bldg. Indianapolis, coal mine and 6 mi. railroad to serve Indiana & Michigan Power Plant. $4,000,000.

▲† **Kan., Fort Leavenworth**—COMMUNICATIONS FACILITIES—U. S. Eng., 1800 Federal Office Bldg., Kansas City, Zone 6, communications facilities, troop housing. $1,092,000 appropriated. CD 10/31/46.

▲† **Md., Cheltenham**—RADIO STATION IMPRVS.—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., communications, facilities, personnel facilities and utilities, Naval Radio Station. $2,489,000 appropriated.

▲† **Md., Fort George G. Meade**—OPERATIONAL FACILITIES—U. S. Eng., 24 St. and Maryland Ave., Baltimore, operational facilities, maintenance facilities, medical facility, troop housing, utilities. $5,885,000 appropriated. CD 5/16/51.

† **N. M., Las Cruces**—WHITE SANDS PROVING GROUNDS—U. S. Eng., P.O. Box 1538, Albuquerque, White Sands Proving Grounds, utilities. $693,000 appropriated. CD 10/19/51.

▲† **N. C., Camp Lejeune**—MARINE CORPS BASE—P. Wks. Office, Marine Corps Base, Camp Lejeune, Marine Corps Base, personnel facilities, administrative facilities, training facilities, community facilities, medical facilities, storage facilities and utilities. $5,092,000 appropriated. CD 9/22/55.

† **N. C., Fort Bragg**—ADMINISTRATIVE FACILITIES—U. S. Eng., 308 Customhouse, Wilmington, administrative facilities, operational facility and utilities. $645,000 appropriated. CD 12/26/54.

† **Pa., New Cumberland**—DEPOT—U. S. Eng., 2635 Abbottsford Rd., Phila., New Cumberland General Depot maintenance facilities. $631,000 appropriated.

▲† **R. I., Newport**—NAVAL STATION—First Naval Dist., 495 Summer St., Boston, Mass., Naval Station, waterfront facilities, personnel facilities, community facilities and utilities. $11,672,000 appropriated.

▲† **S. C., Charleston**—NAVAL MINECRAFT BASE—P. Wks. Officer, Dpt. Navy, Naval Base, Charleston, Naval Minecraft Base, operational facilities, personnel facilities, training facilities, maintenance facilities storage facilities, community facilities, security facilities and utilities. $7,902,000 appropriated.

▲† **S. C., Parris Island**—MARINE CORPS RECRUIT DEPOT—P. Wks. Officer, Dpt. Navy, Naval Base, Charleston, Marine Corps Recruit Depot, personnel facilities, administrative facilities, storage facilities, training facilities, community facilities and utilities. $4,266,000. CD 9/17/51.

▲ **Texas**—GAS LINES—El Paso Natural Gas Co., Bassett Tower, El Paso, gas collection lines and compressor, Robert Lee, $450,000; gas collection lines and compressor, Sweetwater, $554,000. CD 2/5/53.

▲ **Tex., Corpus Christi**—DRY DOCK—Nueces County Navigation Dist. Comm., c/o Waterfront Wharf, voted bond Aug. 25, for dry dock. $1,600,000. CD 8/17.

† **Utah, Tooele**—DUGWAY PROVING GROUND—U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Dugway Proving Ground, research and development facilities and utilities. $867,000 appropriated.

▲† **Va., Fort Eustis**—OPERATIONAL FACILITY—U. S. Eng., foot of Front St., Norfolk, Zone 1, Operational Facility, maintenance facility and utilities, $1,231,000 appropriated.

▲† **Va., Yorktown**—NAVAL MINE DEPOT—Dist. P. Wks. Office Fifth Naval Dist., U. S. Naval Base, Norfolk, Naval Mine Depot, ammunition storage and ordnance facilities and utilities. $3,480,000.

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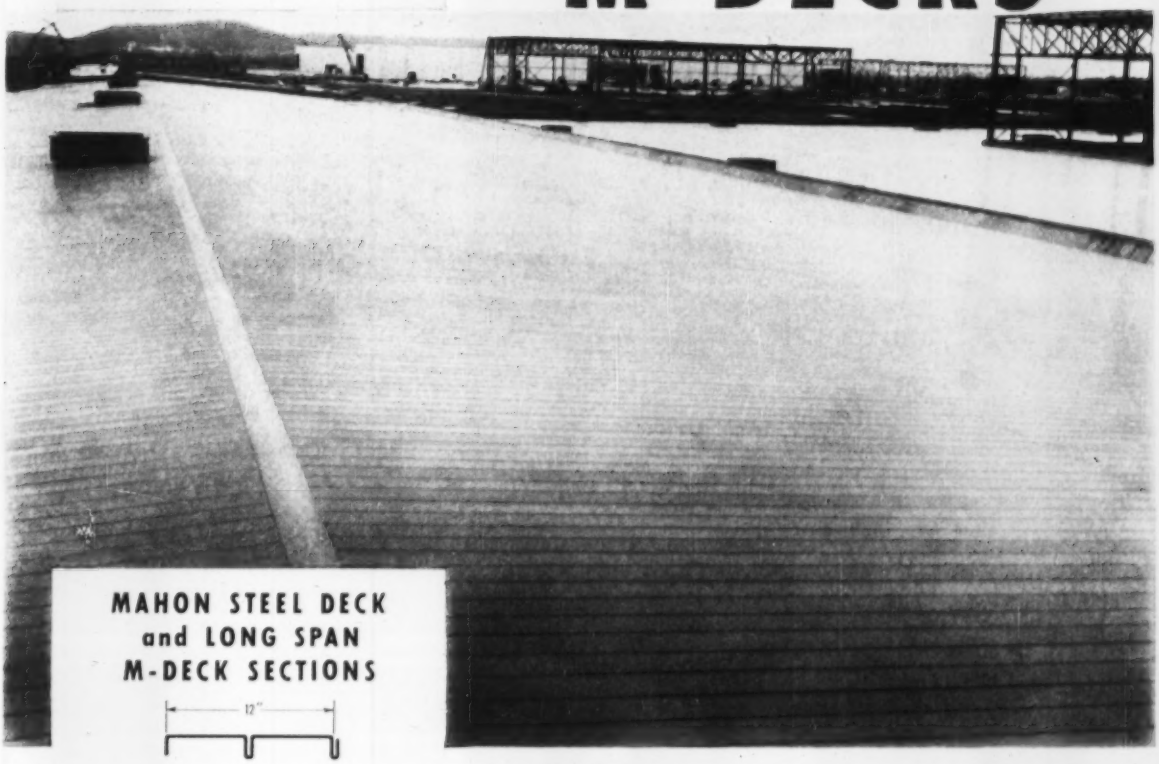
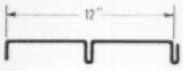


MAHON STEEL DECK and LONG SPAN M-DECK SECTIONS



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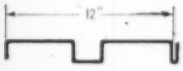

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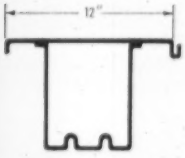
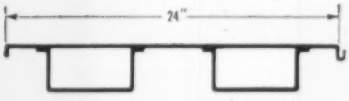
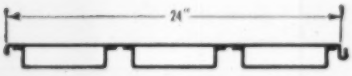


LONG SPAN M-DECK
SECTION M1



LONG SPAN M-DECK
SECTION M2



LONG SPAN M-DECK
SECTION M3

1,600,000 Sq. Ft. of Mahon Steel Roof Deck!

Mahon Standard Double Rib Steel Deck is still the most practical material for modern roof construction . . . it is used to roof a greater percentage of new construction year after year. There are two good and logical reasons for this: It weighs less per sq. ft. and it costs less per sq. ft. than any other type of permanent roof building material. And now that Long Span M-Decks are available in a number of Structural Sections and Acousti-Structural Sections that meet virtually any requirement in roof construction and combined roof/ceiling construction, STEEL, employed as the structural unit and interior finish material as well, will roof even a broader range of building types. Long Span Acousti-Structural Sections may be employed as shown for a beamed ceiling effect, or reversed for a flat metal ceiling surface. Noise Reduction Coefficients range from .70 to .85 for various Sections. Mahon Acoustical and Troffer Forms are also available for recessed lighting in acoustical ceilings of concrete joist and slab construction. See Sweet's Files for information, or write for Catalogs D-57 and M-57.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

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MAHON

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 17 Conn. September 27 Mass.
STREETS AND ROADS
September 17 Conn. September 18 Mass.

BUILDINGS—LB & CA

▲ **George A. Fuller Co.**, 11 Beacon St., Boston, Mass. CA. Approx. $1,000,000. REVENUE ACCOUNTING BLDG., St. Peter, Federal and Ash Sts., SALEM, MASS. New England Telephone & Telegraph Co., 185 Franklin St., Boston, Mass. Bids Aug. 28. CD 8/20.

▲ **White Constr. Co.**, 376 Boylston St., Boston, Mass. CA $1,031,548. two ELEMENTARY SCHOOLS, Claypit Hill Rd. and Loker St., WAYLAND, MASS. Town, School Dpt., Cochituate Rd., Wayland, Mass. CD 8/15, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 27 New York September 28 Pennsylvania
STREETS AND ROADS
September 18 Maryland, New Jersey
September 27 New York
September 28 Pennsylvania

BUILDINGS—BA

Pa., Bristol—SCHOOL—BA 9/27—Bristol Twp. School Auth., Bristol, 1 story, brick, masonry, 51,000 sq. ft. Elementary School No. 4, Kenwood Section, Levittown. $850,000. Micklewright & Mountford, 72 Ewing St., Trenton, N. J., archts. CD 4/24.

▲ **N. Y., Port Washington**—SCHOOL—BA 10/15—Bd. Educ., Port Washington, John Philip Sousa Junior High School, $2,000,000. Eggers & Higgins, 100 E. 42 St., New York, Zone 17, archts. CD 3/7.

BUILDINGS—SLC

▲ **Pa., Levittown**—SCHOOL—R. C. Archdiocese of Phila., 225 N. 18 St., Phila., soon lets contract, 4 story, 62x290 ft.; 3 story, 88x108 ft. brick block Catholic High School, $1,500,000. Henry D. Dagit & Son, 1329 Race St., Phila., engrs.-archts. CD 7/9.

HEAVY CONSTRUCTION—LB & CA

▲ **S. J. Groves & Sons Co.**, 19 Rector St., New York, N. Y. LB $2,231,451. relocation of N. Y. State Hy. Rte. 37 between Waddington and Coles Creek, St. Lawrence Co., Spec. No. PA-5-11021, St. Lawrence Contr. No. 29, NEW YORK. Power Authority of the State of New York, 270 Broadway, New York, N. Y. Bids Sept. 6. CD 8/17.

▲ **Tufano Contg. Co.**, 32-17 Lawrence St., Flushing, N. Y. LB $1,258,587 (5 bidders) paving, furnishing, installation of utilities for parking fields, Central Terminal area, New York International Airport, Contr. NYA-650-007, IDLEWILD, N. Y. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Aug. 28. CD 8/16.

▲† **American Dredging Co.**, 12 S. 12 St., Phila., Pa. CA $1,636,362 dredging Delaware River to depth of 35 ft. and width of 400 ft. from Allegheny Ave. to upper end of Bridesburg Range, about 1,500 ft. south of Tacony-Palmyra Bridge, PENNSYLVANIA. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. CD 8/17, under LB.

▲ **MARYLAND**—State Rds. Comm., 108 E. Lexington St., Baltimore, Zone 2.
E. D. Plummer & Sons, 961 S. Main St., Chambersburg, Md. LB $1,243,332. grading, wid'n., relocation, surf. 6.102 mi. State Rte. 34, W 441-2-620, Washington Co. Bids Aug. 28. CD 8/17.

BUILDINGS—LB & CA

▲ **Colony Park Homes**, c/o Alwin Cassens Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $3,800,000. 200 HOUSES on tract at Grand Ave. and Lincoln St., BALDWIN, N. Y.

▲ **Terminal Constr. Co.**, State Hy. No. 17 and Moonachie Ave., Wood-Ridge, N. J. LB $4,980,000 (5 bidders) general constr., 590-unit Ellicott Mall HOUSING, BUFFALO, N. Y. Buffalo Municipal Housing Auth., City Hall, Buffalo, N. Y. CD 5/27/53;
Quackenbush Co., 505 Franklin St., Buffalo, N. Y. LB $454,853. heating and ventilating work (Buffalo, N. Y.);
Henry M. Dechert, Inc., 181 Allen St., Buffalo, N. Y. LB $618,200. plumbing work (Buffalo, N. Y.).

▲ **Pickwick Oaks Homes**, c/o Trylon Realty Co., 98-89 Queens Blvd., Forest Hills, N. Y. Owner Builds. $1,-200,000. 100 HOUSES on tract at Veterans Highway east of Sunken Meadow Spur, COMMACK, N. Y.

▲ **Morewood At Cold Spring Hills**, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica 32, N. Y. Owner Builds. $2,500,000. 110 HOUSES on tract at Jericho Turnpike and Hartman on Hill Rd., HUNTINGTON, N. Y.

▲ **B. Perini & Sons, Inc.**, 73 Montvait Ave., Framingham, Mass. CA Est. $5,000,000. SHOPPING CENTER, incl. 50 stores, parking lot at intersection of U.S. Rte. 9 and N. Y. State Rte. 7 at Latham Circle, LATHAM CORNERS, N. Y. Latham Enterprises, Inc., 111 S. Main Ave., Albany, N. Y. Bids July 13. CD 7/12.

▲ **Suburban Greens Homes**, c/o Stanley Shaftel, archt., 166-21 90 Ave., Jamaica, N. Y. Owner Builds. $1,-900,000. 120 HOUSES on tract on Plainview Rd., south of Northern State Parkway, PLAINVIEW, N. Y.

▲ **Morreale Bros.**, Bridge Plaza, Fort Lee, N. J. CA Est. $1,200,000. 40 HOUSES on tract at Mayer Dr. and Rte. 202, SUFFERN, N. Y. Ramapo Hills Homes, c/o contractor.

▲ **Alexander Caplan**, c/o W. C. Pieffer, 322 Morris Ave., Elizabeth, N. J. Owner Builds. $1,000,000. 26 HOMES, off Watchung and Noe Aves., CHATHAM, N. J.

▲ **William Kopp**, P.O. No. 1, Box 273, Andover, N. J. Owner Builds. $2,200,000. 95 HOMES, CRANBERRY LAKE (P.O. Andover) N. J.

▲ **Levin Bush Corp.**, Chambers Brook Rd., Laurelton, N. J. Owner Builds. $7,500,000. 1,000 HOMES, Brick Twp., LAURELTON, N. J.

▲ **Eastern Eng. Co.**, 4535 Georgia Ave., Atlantic City, N. J., LB $1,242,249. 4 story, 90,000 sq. ft. OFFICE, site improvs. and parking area, MOUNT HOLLY, N. J. Bd. Freeholders, Burlington Co., Mount Holly, N. J. Bids Aug. 29. CD 8/8.

▲ **Glenwal Constr. Co.**, Route 46, Saddle Brook, N. J., CA. $1,650,000 general contract HIGH SCHOOL, PARAMUS, N. J. Bd. Educ., Borough Hall, Paramus, N. J. Bids Aug. 2. CD 8/10, under LB.

▲ **Ben & Irving Steinberg**, 790 Broad St., Newark, N. J. Owner Builds. $1,580,000. 93 HOMES, Chester-Dover Rd., to be known as "Clear Ridge Homes," RANDOLPH TWP., N. J. Lester Cohen, 234 Clinton Pl., Hackensack, N. J., archt.

▲ **Beacon Hills Corp.**, 109 Frelinghuysen Ave., Newark, N. J. Owner Builds. $1,500,000. 70 HOMES, off Route 202, to be known as "Townview Manor," SOMERVILLE, N. J. Erwin Gerber, 11 Commerce St., Newark, N. J., archt.

▲ **J. A. Celentano**, 1058 Clifton Ave., Clifton, N. J. Owner Builds. $3,000,000. 100 HOUSES, Packanack Woods, WAYNE TWP., N. J. Leonard Feinen, 320 Lincoln Ave., Hasbrouck Heights, N. J., archt.

▲ **Wenonah Knolls, Att. Martin Lamm**, 1017 Oak Lane Ave., Phila., Pa. Separate Contracts $7,500,000. RESIDENTIAL DEVELOPMENT Tanyard Rd., etc., WENONAH N. J. Dante J. D'Anastasio, 1815 Federal St., Phila., Pa., archt.

Lauter Constr. Co., 112 S. 16 St., Phila., Pa. LB $900,000. 2 RESTAURANTS at Turnpike Interchange, ALLENTOWN-HICKORY RUN, PA. Atlantic Refining Co., 260 S. Broad St., Phila., Pa. L. M. Oldsmith, co. hy. engr. Bids Aug. 15. CD 8/15.

▲ **John J. McDonnell, Inc.**, McClatchy Bldg., Upper Darby, Pa. CA, $1,078,585. general constr. Shady Grove JUNIOR HIGH SCHOOL, alterations to high school bldg., AMBLER, PA. Ambler Joint School Bd. Auth., Ambler, Pa. CD 8/15, under LB.

▲ **Engineers & Builders, Inc.**, 1420 Walnut St., Phila., Pa. Separate Contracts. $3,000,000. RESIDENTIAL DEVELOPMENT, 280 units, Bustleton Ave., PHILA., PA. Samuel Paul, 89-51 164 St., Jamaica, N. Y., archt.

▲ **Navarro Corp.**, 6219 Broad St., Pittsburgh, Pa. CA, Est. $3,500,000. 10 story, bsmnt., steel, brick HALL OF LAW AND BUSINESS, PITTSBURGH, PA. Duquesne University, Bluff St., Pittsburgh, Pa. Wm. York Cocken, Century Bldg., Pittsburgh, Pa., archt. CD 4/24/54.

Harry Bolnover, John Bartram Hotel, Phila., Pa. Separate Contracts. $800,000. RESIDENTIAL DEVELOPMENT, Upper Pottsgrove Twp., POTTSTOWN, PA. W. F. Silliman, 28 S. 18 St., Phila., Pa., archt.

▲ **George H. Evans & Co.** 1915 Spring Garden St., Phila., Pa. LB $1,412,610. general constr., HIGH SCHOOL, BUS GARAGE, athletic field, WAYNE, PA. Radnor Twp. School Dist. Wayne, Pa. Bids Aug. 21. CD 7/27.

▲ **Robert O. Scholz Co., Inc.**, 918 16 St. N.W., Wash., D. C., CA Est. $1,400,000. BANK and OFFICE, 8712 Georgia Ave., SILVER SPRING, MD. Perpetual Building & Loan Assoc., 500 11 St. N.W., Wash., D. C. Charles F. Jost of Bank Bldg. & Equipment Co., 918 16 St. N.W., Wash., D. C., archt.

▲ **John McShain Co.**, 2501 Sinclair Lane, Baltimore 13, Md. LB $2,097,700. COURT HOUSE addn., TOWSON, MD. Comrs. Baltimore Co., County Office Bldg., Towson, Md. Bids Aug. 30. CD 7/25.

▲† **William E. Cramer Co. Inc.**, 2601 Connecticut Ave. N. W., Wash., D. C., LB $5,117,000 base bid except elevators (11 bidders) MAXIMUM SECURITY BLDG. St. Elizabeths Hospital, WASH., D. C. General Services Admin. P. Bldg. Service, Regional Office Bldg., 7 and D Sts. S. W., Wash., D. C. Bids Sept. 5. CD 7/24.

▲ **Rupert Constr. Co.**, 3400 Lancaster Ave., Wilmington, Del., CA, $1,297,357. 3 story, bsmt., 62x263 ft., brick, steel, concrete ENGINEERING SCHOOL, NEWARK, DEL. University of Delaware, Newark, Del. Bids Aug. 22. CD 7/26.

Rupert Constr. Co., 3400 Lancaster Ave., Wilmington, Del., CA, $845,000. ELEMENTARY SCHOOL, Collins Park Section, NEW CASTLE, DEL. Rosehill-Minquadale School Dist., New Castle, Del. Bids Aug. 15. CD 8/23, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 19 Virginia
STREETS AND ROADS
September 19 Virginia

HEAVY CONSTRUCTION—LB & CA

▲ **Fred Howland, Inc.**, 1451 N.W. 20 St., Miami, Fla., LB $1,697,400 Base Bid, completion time 455 days, nose hangars bldg., National Airlines, Miami International Airport, MIAMI, FLA. Bd. Comrs. Dade Co., Court House, Miami, Fla. Bids Aug. 28. CD 8/9.

BUILDINGS—LB & CA

▲ **English Constr. Co.**, Altavista, Va., LB $2,282,231. HIGH SCHOOL, HAMPTON, VA. City School Bd., Hampton, Va. Williams, Cole & Blanchard & Assocs., 424 Dinwiddie St., Portsmouth, Va., archts.-engrs. Bids Aug. 30. CD 2/26/54.

▲ **Girdler Co.**, E. Broadway, Louisville, Ky., design and construct STEAM POWER PLANT to use crushed coal, INSTITUTE, W. VA. Goodrich Gulf Chemicals, Inc., Institute, W. Va. Awarded Aug. 28.

▲ **Terrell J. Murrell**, 1835 N. E. 26 St., Fort Lauderdale, Fla. Owner Builds. $1,270,000. 71-unit, 11 story, 77x135 ft., APARTMENT, with swimming pool, 345 N. Atlantic Blvd., FORT LAUDERDALE, FLA. Polevitzky, Johnson & Assocs., 350 N. E. 18 St., Miami, Fla., archts. H. J. Ross, Times Sq., Fort Lauderdale, Fla., engr.

▲ **White Development Corp.**, 3210 W. Broward Blvd., Fort Lauderdale, Fla., CA $1,000,000. 76-unit, 3 story, 190x250 ft., APARTMENT with swimming pool, 920 S. E. 4 St., FORT LAUDERDALE, FLA. Riverview Garden Apartments, c/o contractor. Geo. B. Cunningham, 529 E. Broward Blvd., Fort Lauderdale, Fla., archt. D. E. Britt Assocs., 309 S. E. 9 Ave., Fort Lauderdale, Fla., engrs.

▲ **Farnsworth & Chambers Co., Inc.**, Box 322, New Orleans, La., LB $3,733,352 (4 bidders) construct and finance 300 HOUSING units, (Capehart) England Air Force Base, ENG-16-600-57-4, ALEXANDRIA, LA. Contg. Officer, England Air Force Base, Alexandria, La. Bids Aug. 28. CD 8/7.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 18 Wisconsin September 19 Michigan
STREETS AND ROADS
September 18 Wisconsin September 19 Michigan
September 25 Indiana

BUILDINGS—BA

▲ **Wis., Madison**—ADULT EDUCATION CENTER—BA 9/27—University of Wisconsin Foundation, 950 University Ave., 3 story, bsmnt. Adult Education Center. $2,000,000. Plans deposit $25. Foeller, Schober, Berners, Safford & Jahn, 320 Pine St., Green Bay, archts. CD 2/15.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 19,
O—**The Herkner Contg. Co.** and **The Herkner Constr. Co.**, 5450 Hamilton Ave., Cleveland, O., CA $3,-741,595, est., $3,993,100, Type T-71 and structures 8.341—mi. S.R. 82, Vienna and Brookfield Twps., Sect. 19.09, Trumbull Co.;
O—**Ruckman & Hansen, Inc.**, 3617 N. Clinton St., Fort Wayne, Ind., CA $817,700, est. $806,200 Type T-35, T-71 and structure 0.71 mi. S.R. 12, City of Fostoria, Sects. (0.64-1.08), U-UG-646 (3), Seneca Co. Bids Aug. 21. CD 8/29 under LB.

▲ **Healy Brothers Co.**, 47 and East Sts., McCook, Ill., CA $1,587,050. sanitary sewers area Robbins-Midlothian, near CHICAGO, ILL. Metropolitan Sanitary Dist. of Chicago, 100 E. Erie St., Chicago, Ill. Bids July 12, awarded Aug. 17. CD 7/27, under LB.

BUILDINGS—LB & CA

Weaver Constr. Co., Bryan, O., CA $864,372, SENIOR HIGH SCHOOL and GYMNASIUM, east edge of Garver Park, BRYAN, O. Bd. Educ., Bryan, O. CD 11/26.

▲ **Highland Constr. Co., Inc.**, 6914 Miami Rd., Mariemont, O. Own Forces. Est. $6,000,000. 1st sect., 325 one story, brick veneer HOMES, Hopper Hills Rd., CINCINNATI, O. CD 8/13.

▲ **William E. Schweitzer Co.**, 2207 Dodge St., Evanston, Ill., LB $1,516,000 (A) Walker SCHOOL, 7735 W. 66 Pl., Bedford Park, (B) Argo Elementary School, 755 W. 64 St., Argo (C) Graves Elementary School, 60 and 74 Ave., Argo (D) Walsh Elementary School, 5640 75 Ave., Argo, ARGO, ILL. Argo School Dist., Argo, Ill. Burnham & Hammond, 53 W. Jackson Blvd., Chicago, Ill., archts.

▲ **S. N. Nielsen**, 3059 Augusta Blvd., Chicago, Ill., CA, $7,500,000. 13-story HOSPITAL, CHICAGO, ILL.

Presbyterian Hospital, 1715 W. Congress St., Chicago, Ill. CD 1/26, under LB.

▲ W. E. O'Neil Constr. Co., 2752 Clybourn Ave., Chicago, Ill., CA. Est. $1,000,000. TEST CELLS P-9 to P-12, addns., railroad tracks, CHICAGO, ILL. Ford Motor Co., P.O. Box 716, Oaklawn, Ill. Bids May 28. CD 5/17.

▲ Sumner Sollitt Co., 307 N. Michigan Ave., Chicago, Ill., CA. $3,000,000. 10-story brick HOSPITAL addn., CHICAGO, ILL. Passavant Memorial Hospital, 303 E. Superior St., Chicago, Ill. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago 3, Ill., archts. (Correction—contractor.) CD 2/29, under CA.

▲ Carl Koehler, 5660 Dixie Hy., Waterford, Mich. CA Est. $9,000,000. Berkshire Villa Hills, 300 HOMES Waterford Hill Sect., WATERFORD, MICH.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲ Tex., Fort Worth—BA 9/27—City, c/o Dr. Jack Garrison, mayor, City Hall, 50 m.g.d. South Holly Water Plant, $3,500,000. Plans deposit $50. Extended date. Freese & Nichols, 407 Daniciger Bldg., engrs. CD 8/14.

▲ Tex., Midland—AIR TERMINAL—BA 11/15—City, City Hall, air terminal expansion $1,000,000. J. J. Black, 801 W. Kansas St., archt. CD 8/17.

BUILDINGS—BA

Minn., Willmar—SERVICE—BA 9/27—State, Dpt. Admin., P. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, 1 story, part bsmnt., 140x260 ft., service bldg. laundry, 70x90 ft. attached garage, $900,000. Plans deposit $40, Hammel & Green, 193½ University Ave., St. Paul, archts. CD 8/1/55.

▲* Kan., Fort Leavenworth—ACADEMIC—BA 10/5—U. S. Eng., Federal Office Bldg., Kansas City, Mo., 3 story, rein.-con., brick,-concrete block, 300,000 sq. ft. academic bldg. Inv. 23-028-57-16. $5,000,000. CD 8/21.

▲ Tex., Longview—REFINERY—Bids Asked—Premier Oil Refining Co., Longview, platformer, unifying units for refinery expansion, $1,250,000. CD 8/27.

BUILDINGS—SLC

▲ Tex., WACO—SHOPPING CENTER—Westview Village, Inc., and R. E. Cox Co., Waco, soon lets contract, shopping center. $1,000,000. Spice, Bush & Witt, 2125 Austin St., archts.-engrs. Yandell, Cowan & Love, Fort Worth Natl. Bank Bldg., Fort Worth, engrs.

HEAVY CONSTRUCTION—LB & CA

▲† Peter Kiewit & Sons Co., Southeast Station, Wichita, Kan. CA $3,453,561. operational parking apron and hydrant fueling sys., Altus Air Force Base, DA34-066-ENG-5013 (IFB ENG-34-066-57-2), ALTUS, OKLA. U. S. Eng., Box 61, Tulsa 2, Okla. CD 8/28, under LB.

BUILDINGS—LB & CA

▲ Abell-Howe Co., 55 W. Jackson St., Chicago, Ill., CA Est. $1,500,000 general contract 1 story, 70,000 sq. ft., concrete block, brick, steel electric PLANT, BURLINGTON, IOWA. General Electric Co., Appliance Control Dpt., Morrison, Ill. Vern E. Alden Co., 33 N. La Salle St., Chicago, Ill., engr. CD 6/5.

▲ Weitz Co., Inc., 406 Fleming Bldg., Des Moines, Iowa, CA. $1,250,000. 117,000 sq. ft. PLANT addn., DES MOINES, IOWA. Solar Aircraft Co., 1401 Bell St., Des Moines, Iowa. Brooks & Borg, 815 Hubbell Bldg., Des Moines, Iowa, archts.

▲ W. A. Klinger Co., 2015 7 St., Sioux City, Iowa, LB $3,067,000, general contract BURGE HALL, University of Iowa, IOWA CITY, IOWA. State Bd. Regents, State Office Bldg., Des Moines, Iowa. Bids Aug. 23. CD 7/11;
Hagan Co., 1611 Grandview St., Sioux City, Iowa, LB $668,600 plumbing and heating work (Iowa City, Iowa).

▲ C. Rallo Contg. Co., 5000 Kemper Ave., St. Louis, Mo. LB $1,582,872. general constr. 3 story, brick, concrete, steel SENIOR HIGH SCHOOL, St. Charles Rock and Lucas and Hunt Rds., NORMANDY (ST. LOUIS 21 P.O.) MO. Normandy School Dist. Bd. Educ., Ward E. Barnes, supt. Schools, 7837 Natural Bridge Rd., Normandy 21, Mo. Bids Aug. 29. CD 8/7;
Peters-Eichler Heating Co., 8047 Litzinger Rd., Brentwood 17, Mo. LB $464,431. heating, ventilating, refrigeration and gas piping work (Normandy, Mo.).

▲† Alport Constr. Co., 502 Title Guaranty Bldg., St. Louis 1, Mo. CA $1,561,915. constr. green salt PLANT and tank farm, areas 201 and 202, (Subcontract WS 561, WELDON SPRING, MO. Fruin-Colnon Contg. Co. & Utah Constr. Co., (joint venturers), P. O. Box 522, St. Charles, Mo., Prime contractor for Atomic Energy Comn., St. Louis Area Proj. AT (40-1) 1966. Bids Aug. 15. CD 12/29/54, under CA.

▲ Centex Constr. Co., 4606 Greenville St., Dallas, Tex. CA $4,176,000. construct and finance, 360 HOUSING units for Military Personnel, Blytheville Air Force Base, BLYTHEVILLE, ARK. Procurement Officer, Blytheville Air Force Base, Blytheville, Ark. Awarded Aug. 29. CD 2/8.

▲ W. R. Grimshaw, KOME Bldg., Tulsa, Okla., CA est. $1,500,000. 80,000 sq. ft. BAKERY, 11 and Memorial Sts., TULSA, OKLA. Continental Baking Co., 630 5th Ave., New York, N. Y. Awarded Aug. 16. CD 5/2.

▲ J. M. Odom, Box 774, Austin, Tex., CA $1,544,750, LABORATORY and ADMINISTRATION BLDG., AUSTIN, TEX. State Dpt. P. Health, Dr. Henry A. Holle, dir., 410 E. 5 St., Austin, Tex. CD 8/22, under LB.
Young & Pratt, Box 901, Austin, Tex., CA $516,075, heating, ventilating, air-conditioning (Austin, Tex.).

▲ Texas Natural Gasoline Corp., Melrose Bldg., Houston, Tex. Owner Builds. $3,750,000. natural gas and residue processing refinery PLANT, BAKER, MONT.

▲ C. B. Lauch Constr. Co., 5404 Cedar St., Boise, Idaho, CA $1,252,861 (3 bidders) general constr. 8 story bsmnt., COURTHOUSE, BILLINGS, MONT. Yellowstone Co., Courthouse, Billings, Mont. Bids Aug. 27, awarded Aug. 28. CD 7/31.

▲ Olson Constr. Co., 840 S. Jason St., Denver, Colo., CA $1,425,782. general contract HIGH SCHOOL, STERLING, COLO. School Dist. No. 12, Sterling, Colo. CD 8/14, under LB.

▲† Rob. E. McKee General Contractor, Inc., Box 1706 Santa Fe, N. M. CA $1,732,700. Group "18" HOUSING Phase "B", Inv. 292-56-13, LOS ALAMOS, N. M. Atomic Energy Comn., Los Alamos, N. M. CD 8/15, under LB.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 3 California
STREETS AND ROADS
September 26, 27, October 3, 4, 10, California
September 27 Nevada

BUILDINGS—BA

▲ Calif., San Jose—HOSPITAL—BA 10/3—Bd. Supervs. Santa Clara Co., Court House, 7 story, rein.-conc. nursing wing and 5 elevators at Santa Clara County Hospital, $4,300,000. Plans deposit $100. Stone, Mullory, Marraccins & Patterson, 619 California St., San Francisco, archts. CD 10/28.

HEAVY CONSTRUCTION—LB & CA

WASHINGTON—State Hy. Comn., Olympia,
Erickson Paving Co., Bellevue, Wash., CA $826,545. bit. surf., cement-treated base, b. conc. paving 3 rein.-conc. T-beam bridge 3.26 mi. Sec. State Hy. 2-A, Renton to May Creek, King Co. Bids Aug. 28, awarded Aug. 29. CD 9/6, under LB.

▲† General Constr. Co., 4850 N.W. Front Ave., Portland, Ore., LB $1,028,466, est. $966,459 (2 bidders) repair stone revetments along shore of McNary Dam Reservoir, Columbia River at 13 locations, Inv. 57-B, OREGON-WASHINGTON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Aug. 30. CD 8/13.

▲ CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,
Fredericksen & Kasler, 212 13 St., Sacramento, Calif., LB $3,435,889. (9 bidders) grading, paving 4 mi. Ventura Freeway to provide 6-lane divided facility between 0.4 mi. east of Kelvin Ave. in Los Angeles and 0.2 mi. west of Calabasas and 5 undercrossings, pedestrian overcrossing and Mulholland Dr. overcrossing, Los Angeles Co. Bids Aug. 30. CD 8/2.

▲† Cen-Vi-Ro Pipe Corp., 8610 Atlantic Ave., South Gate, Calif., CA $5,638,539. earthwork, pipe lines, structures for Shafter-Wasco laterals, and sublaterals completion of laterals 134.4 and 137.2; sublaterals for lateral 134.4 feeder main, Shafter-Wasco Irrigation District, Friant-Kern Canal Distribution System Central Valley Proj., Spec. DC 4732, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lindsay, Calif. Bids Aug. 23. CD 8/28, under LB.

BUILDINGS—LB & CA

▲ Tolboe & Harlin, 3091 Main St., Salt Lake City, Utah, CA. Est. $1,500,000. 4 story, bsmnt. OFFICE, First South and Second East Sts., SALT LAKE CITY, UTAH. Mountain Fuel Supply Co., 36 S. State St., Salt Lake City, Utah. Bids Aug. 30. CD 8/9.

▲ H. George & Sons, Hutton Bldg., Spokane, Wash., CA, Est. $2,000,000. CEMENT PLANT addn., incl. 16 rein.-con. storage bins with capacity of 240,000 bbl.; METALINE FALLS, WASH. Lehigh Portland Cement Co., Metaline Falls, Wash.

▲ H. Halvorson, Inc., Ziegler Bldg., Spokane, Wash., LB $947,807 (4 bidders) general contract, two 5-story RESIDENCE HALLS for women, PULLMAN, WASH. Washington State College, Pullman, Wash. Bids Aug. 31. P. Thiry, 800 Columbia St., Seattle, Wash., archt. CD 7/12;
J. G. Watts Constr. Co., Salem, Ore., LB $499,798 (9 bidders) general contract 9 frame 2 story bldgs., 99-units of married students housing, Walker, McGough & Trogden W1023 Riverside St., Spokane, Wash., archts. (Pullman, Wash.).

▲ U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., cancelled bids to have been opened Aug. 10, construct and finance, Capehart family housing, Armored Combat Training Center, ENG-04-353-57-1, CAMP IRWIN, CALIF. Est. $4,500,000. CD 7/19.

▲ W. J. Nicholson Co., Inc., 805 Kifer Rd., Santa Clara, Calif., CA. $1,732,717. Holy Cross Girls HIGH SCHOOL, MOUNTAIN VIEW, CALIF. Sisters of Holy Cross, c/o Vincent G. Raney, archt., 233 Post St., San Francisco, Calif. CD 8/7, under LB.

▲ Theo. G. Meyers & Sons, 200 Quint St., San Francisco, Calif., CA. $3,711,315. 1 story, 90,000 sq. ft. EXHIBIT HALL, Civic Center Plaza, SAN FRANCISCO, CALIF. City and San Francisco Co., Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Aug. 2. CD 8/10, under LB.

▲ James I. Barnes Constr. Co., 1940 Spring St., Redwood City, Calif., CA $1,914,000. general contract, 4 WARD bldgs., Sonoma State Hospital, SONOMA, CALIF. State Div. Architecture, 1120 N. St., Sacramento, Calif. Bids Aug. 28. CD 9/4, under LB, Calif., Eldridge.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 18 Alberta September 28 British Columbia
STREETS AND ROADS
September 19 Ontario

BUILDINGS—BA

▲ N.B., Fredericton—HOUSING—BA 9/25—C. F. Emms, assistant regional constr. engr., Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N.S., 191 Class I and II, D.N.D. housing units with related services at married quarters area, Canadian Army Camp, Gagetown, for Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont., $1,000,000. Plans deposit $100. Wiggs, Walford, Frost & Lindsay, 4350 Sherbrooke St., Montreal, Que., engrs.

▲ Ont., Toronto—POST OFFICE, etc.—BA 10/3—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. structural steel, fabrication and erecting structural steel for 14 story, 300 ft. frontage structure to house post office, income tax dept., National Film Board, Adelaide and Victoria Sts. Total est. $9,000,000. Plans deposit $75. Shore & Moffat, 51 Wellington St. W., archts. CD 2/23/54.

BUILDINGS—SLC

▲ Sask., Saskatoon—FIBREBOARD PLANT—Prairie Fibreboard Ltd., 255 3 Ave. S., soon lets contract foundation and shell for 140x568 ft., steel frame, brick fibreboard plant, rein.-con. fdn. Total est. $3,000,000. Stalder, Hunter & Co., 1117 S. Catherine St. W., Montreal, Que., engrs. CD 7/11.

HEAVY CONSTRUCTION—LB & CA

▲ BRITISH COLUMBIA—B.C. Govt., Parliament Bldgs., Victoria
B.C.—Ben Ginter Constr. Co. Ltd., Prince George, B.C., LB $1,956,176 (6 bidders) Proj. 778, 22.9 mi. Elko-Roosville Hy., Fernie electoral district;
B.C.—General Constr. Co. Ltd., Granville Island, Vancouver, B.C., LB $1,092,856 (7 bidders) Proj. 786, reconstr. 7.25 mi. Trans-Canada Hy. Chase-Sorrento Section. F. T. Brown, Parliament Bldgs., Victoria, engr.

▲ ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto,
Wallace A. Mackey, Ltd., 50 Church St., Weston, Ont., CA $1,132,117 (4 bidders) Contract 56-124, grading, culverts, gran. base 10 mi. Hy. 17 on route Trans-Canada Hy., near White River. Awarded Aug. 24.

▲ Spino Construction Ltd., 200 Sauve Ave. W., Montreal, Que., LB $1,242,260 (3 bidders) 4th Section of Molson Creek Collector sewer, MONTREAL, QUE. City, City Hall, Montreal, Que. Bids Aug. 29. CD 8/21.

▲ Edouard Monette Ltd., 2140 Gouin Blvd. E., Montreal, Que., LB $1,098,617, partial development (5 bidders) Angrignon Park and Zoo at west end of Cote St. Paul Rd., MONTREAL, QUE. City, City Hall, Montreal, Que. Bids Aug. 22. CD 8/7.

BUILDINGS—LB & CA

Varamac Constr. Co. Ltd., 532 St. Clair Ave. W., Toronto, Ont., LB $947,140 (7 bidders) Thistledown Collegiate INSTITUTE, TORONTO, ONT. Etobicoke Twp. Bd. Educ., 4769 Dundas St. W., Islington, Ont. Bids Aug. 22. CD 8/7.

▲ Anglin-Norcross Quebec Ltd., 892 Sherbrooke St. W., Montreal, Que., LB $9,143,895 (9 bidders) FEDERAL bldg., Dorchester and Bleury Sts., MONTREAL, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. CD 12/6.

▲ El-Rancho Homes Ltd., 540 Joubert St., St. Vincent De Paul, Montreal, Que., Owner Builds, $1,000,000. 45-bungalow HOUSING, MONTREAL, QUE. David Reich, 5810 Cote St. Luc Rd., Montreal, Que., archt.

▲ Leon M. Adler, 2200 Ward Ave., Montreal, Que., LB $1,000,000 (7 bidders) SHOPPING CENTER, northern outskirts of ST. JEROME, QUE. Maxwell Cummings & Sons, 1390 Sherbrook St. W., Montreal, Que. Bids Aug. 15. CD 8/9.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲† U. S. Eng., Anchorage, Alaska, rejected bids June 19, White Alice installation at Sitkinak, ALASKA. LB $1,272,250, est. $596,978. CD 6/18, under LB.

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ British-Thomson-Houston Export Co. Ltd., London, England, CA $6,000,000. 330 kv switchgear and auxiliary equip., Kariba Dam, SOUTHERN RHODESIA, AFRICA. Federal Hydro-Electric Bd., Salisbury, Southern Rhodesia, Africa. CD 7/29/55.

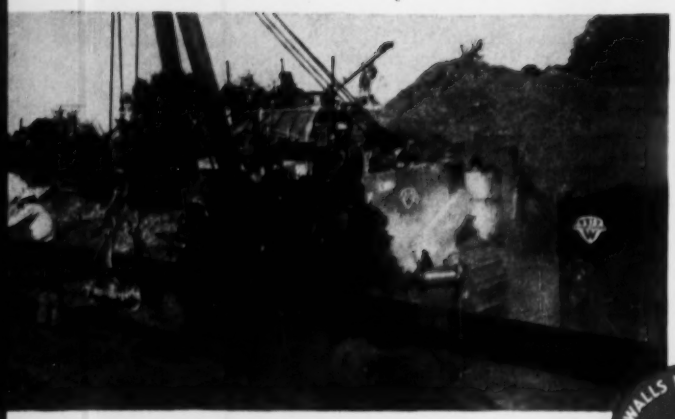
BUILDINGS—LB & CA

▲ Japan Gasoline Co. (agent for Universal Oil Products Co.), Tokyo and Tokuyama, Japan, CA $25,000,000. 30,000 bbl. REFINERY, TOKUYAMA, JAPAN. (Idemitsu Kosan Co. Ltd., Tokuyama, Japan. CD 1/11.

(Proposal Advertisements see pp. 153 to 156)

10,200 tons of NATIONAL SEAMLESS

used in World's

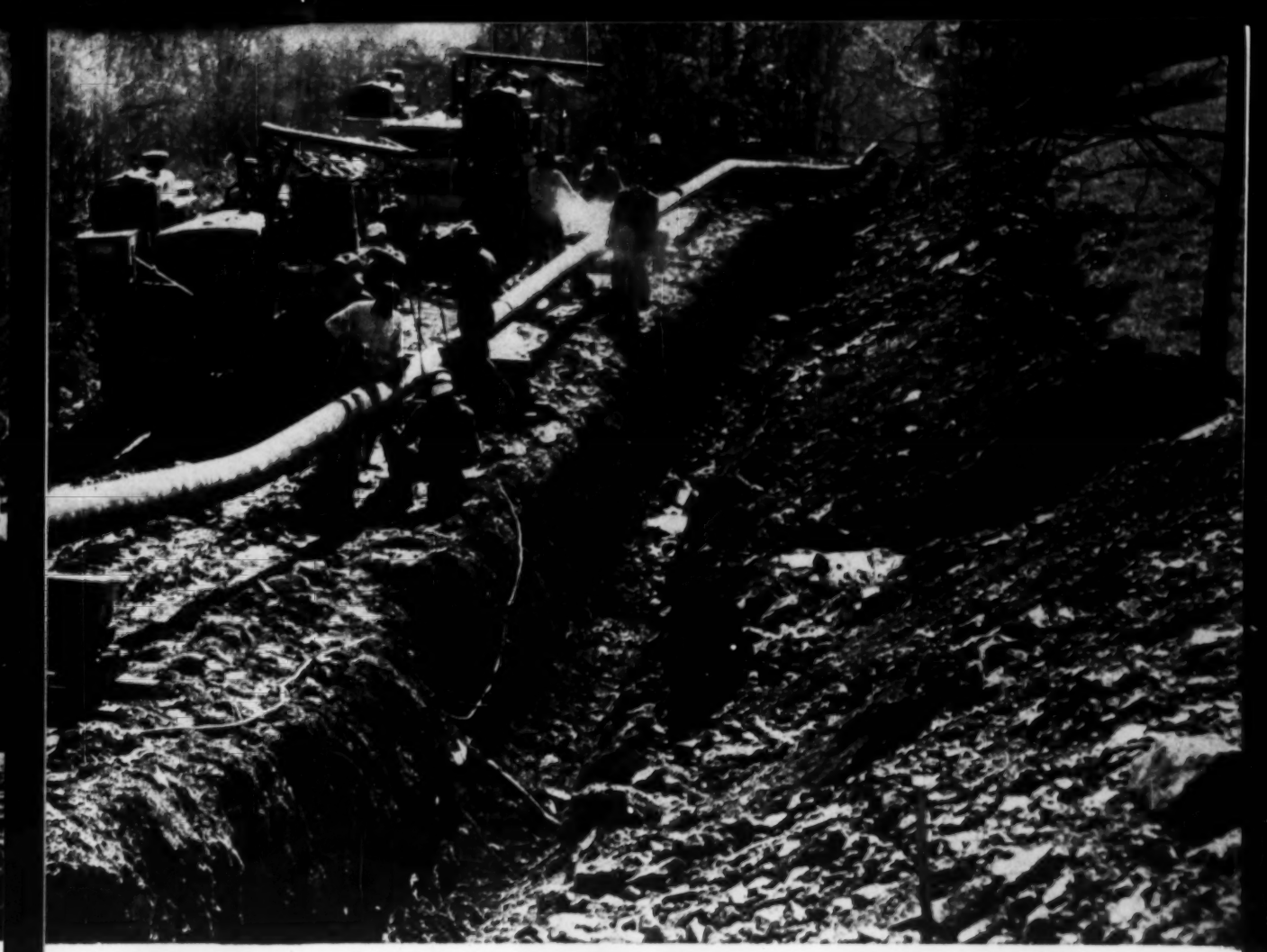


Coating and wrapping National Seamless Pipe prior to lowering in.

Stringer bead welders near Cadiz, Ohio.

WALLS WITHOUT WELDS

NATIONAL SEAMLESS PIPE AND TUBES



first Coal Pipeline

A unique, $10 million, 10¾" O.D. pipeline is presently under construction for Pittsburgh Consolidation Coal Company. It will run from the Cadiz, Ohio area to the Cleveland Electric Illuminating Company's East Lake, Ohio, plant. Plans call for the line to carry 1,200,000 tons of coal a year. The coal is to be pulverized, mixed with water and pumped as a slurry to its destination. It will then be dried and processed prior to delivery to the consumer.

National Seamless Pipe is especially suited to rugged service such as this because of its strength, uniformity and flexibility. National Seamless is the pipe chosen consistently by engineers for every kind of pipeline. It gives long, dependable, trouble-free service. Specify National Seamless "Walls Without Welds" for your next job.

NATIONAL TUBE DIVISION

UNITED STATES STEEL CORPORATION, PITTSBURGH

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

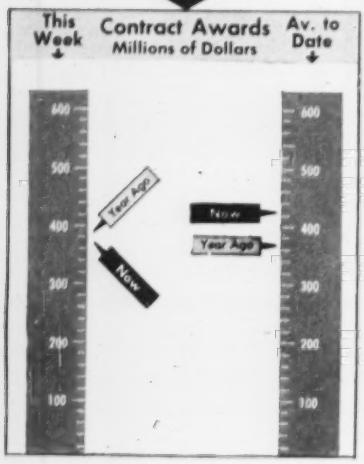
In Pipelines Too . . . Seamless Does It Better

USS

UNITED STATES STEEL

Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 37 wks 1956	Chge %
	$ millions		
Federal	$26.7	$1,245.6	+1
State and Municipal	112.8	4,610.6	+20
Total Public	139.5	5,856.2	+15
Total Private	232.9	9,787.3	+17
U. S. Total	$372.4	$15,643.5	+16
By Type of Work			
Waterworks	$2.9	$252.5	+29
Sewerage	12.9	425.9	+47
Bridges	3.9	422.8	+27
Highways	34.1	1,733.7	+11
Earthwork, Waterways	16.4	548.5	+46
Buildings:			
Public, Excl. Housg.	46.7	1,473.3	+17
Public Housing	4.5	225.5	+4
Private Housing	97.9	4,130.0	−8
Commercial	44.7	1,277.9	+4
Industrial	87.0	3,907.1	+102
Unclassified	21.4	1,246.3	−18
U. S. Total	$372.4	$15,643.5	+16

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

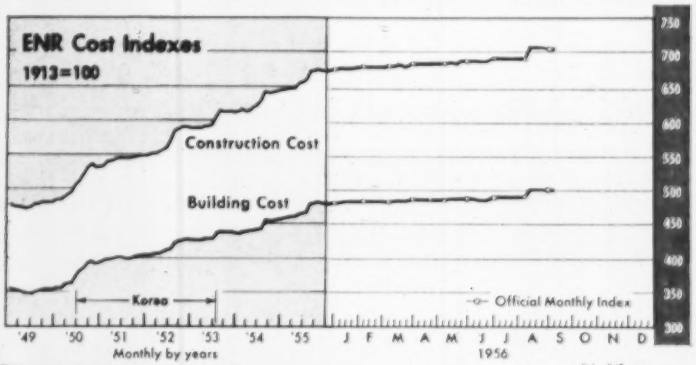
NEW CAPITAL FOR CONSTRUCTION

	Week of Sept. 6	Cum. 36 wks 1956	Chge '55-'56
	$ millions		%
Corporate Securities	$277.5	$3,426.4	+49
State and Municipal:			
All Except Housing	53.1	3,141.1	+9
Housing	...	42.3	−41
Federal Loans	...	125.7	+39
Federal Aid	...	1,070.0	+25
Total Nonfederal	330.6	7,805.5	+26
Federal Appropriations:			
In U. S.	...	3,460.3	+2
Outside U. S.	...	15.9	−81
Total New Capital	$330.6	$11,281.7	+17

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of Sept. 6 1956	% Change from Aug. 9 1956	% Change from Sept. 8 1955
Construction Cost	704.75	−0.2	+4.7
Building Cost	500.21	−0.2	+4.3

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.086; Building Cost by 1.845.
1949 = 100: Divide Construction Cost by 1.770; Building Cost by 3.518.



CONTRACTS AWARDED

Millions of dollars	August	1956 8-Mos.	% Change from 1955* August	% Change from 1955* 8-Mos.
Total U. S., ENR reported	$1,828.5	$15,027.2	+18	+18
Private	1,144.2	9,441.4	+23	+20
Public	684.3	5,585.8	+10	+16
State and Municipal	605.4	4,400.6	+11	+22
Federal	78.9	1,185.2	+3	−3
ENR Volume Index, 1913 = 100	583	697	+15	+14

*Based on average week.

NEW CONSTRUCTION CAPITAL

Millions of dollars				
Total U. S.	$3,116.2	$10,951.1	−27	+13
State and Municipal Bond Sales	272.0	3,130.3	−13	+7
Corporate Security Sales	455.3	3,148.9	+177	+39
Federal Loans, Aid (nonfederal work)	47.1	1,195.7	−68	+23
Federal Appropriations (federal work)	2,341.8	3,476.2**	−35	−3

**Includes funds for outside U. S.

MATERIALS SHIPMENTS

Unit	May (M) June (J) July (Jl)	1956 Cum. (No. of Mos.)	% Change fr. Year Ago Mo.	% Change fr. Year Ago Cum.
Portland Cement, Bur Mines, thous bbls	31,787(M)	110,298(5)	+9	+6
Conc Paving Awards, PCA, thous sq yd	4,795(Jl)	52,303(7)	−17	−7
Fabricated Structural Steel, thous tons	165(Jl)	1,890(7)	−25	+16
Bookings, AISC, thous tons	288(Jl)	2,465(7)	−33	+22
Reinforcing Bars, Net, AISI, thous tons	N.A.(J)	N.A.(6)	N.A.	N.A.
Lumber, NLMA, mil fbm	3,160(J)	18,935(6)	−16	−5
Orders, mil fbm	3,009(J)	18,731(6)	−20	−8
Production, mil fbm	3,305(J)	18,820(6)	−8	−3
Douglas Fir Plywood, DFPA, 3/8" basis				
Production (aver per week), mil sq ft	78.9(Jl)	97.6(7)	+3	+5
Orders (average per week), mil sq ft	76.0(Jl)	91.1(7)	−17	−3
Clay Products, Bur Census				
Brick, Ungl. Common, Face, mil bri	661.5(M)	2,717.7(5)	+1	+3
Vitrified Clay Sewer Pipe, thous tons	137.3(M)	700.5(5)	−21	+3
Structural Tile, Unglazed, thous tons	61.3(M)	280.1(5)	−15	−16
Asphalt Products, Bur Census				
Asphalt Roofing, thous sales sqs	5,712(J)	29,131(6)	−15	−6
Asphalt Siding, thous sales sqs	95(J)	553(6)	−13	−7
Aluminum, Wrought, Net, Bur Census				
Sheet and Plate (non-heat treatable), mil lb	88.5(J)	587.1(6)	−6	+17
Wire and Cable, mil lb	23.8(J)	158.2(6)	−0.1	+27
Extruded Shapes (soft alloys), mil lb	53.6(J)	328.2(6)	−11	+9

EMPLOYMENT AND FAILURES

Contract Const Employ, BLS, thous	3,296(Jl)	2,899(7)‡	+9	+10
Contract Failures, Dun & Bradstreet				
Number	141(Jl)	1,006(7)	+38	+34
Liabilities, thous-$	7,488(Jl)	$55,063(7)	+19	+27

‡Average per month.

Ansonia Wire & Cable Company's new 124,200 square foot plant, which will house manufacturing facilities, a laboratory, and office space in 25' x 50' bays: Engineers: Fletcher Thompson, Inc., Bridgeport, Conn. General Contractors: Gilbane Building Company, Providence, R. I. Subcontractors for manufacture and erection of girders and columns: The Dextone Company, New Haven, Conn., a Freyssinet Affiliate.

Consultants for prestressed girders and precast columns: Freyssinet Company, Inc., New York, N. Y.

For **FAST** *Construction of Industrial Buildings . . .*

use prestressed concrete

The Ansonia Wire & Cable Company's new manufacturing plant in Providence, R. I., proves prestressed concrete's advantages over other building methods. Fast erection was a prime requirement on this job—along with modern design and high quality—and only by using prestressed girders, precast columns, and "tilt-up" walls could demanding specifications be met and the bid still be competitive.

There were other important features of the Ansonia Wire & Cable structure significant to industrial plant builders:

- 50′ prestressed concrete girders with 6″ holes provided for present and future service lines. These girders were standard Freyssinet I-Beams.
- girders and precast columns were designed to carry a two-ton concentrated load in addition to the metal deck and ordinary roof loading.
- girders met 5,000 psi specifications and columns 3,750 psi.
- lower insurance rates because of greater fire resistance.

Only experts can provide prestressed concrete quality. Such experts are the Freyssinet Affiliates—each of whom operates a product plant equipped to manufacture *any type or size* of concrete structural unit on universal pretensioning beds. Highest standards of design and quality control during production are assured because each Affiliate retains skilled Freyssinet engineers, who have trained those responsible for producing quality precast products.

Engineers, owners and architects are invited to call the nearest Freyssinet Affiliate, whose sales engineering staff will analyze their job for fast, economical construction in prestressed concrete.

FREYSSINET AFFILIATES

The Dextone Company
166 Chapel Street
New Haven, Conn.

•

Goodstone Manufacturing Co., Inc.
470 Hollenbeck Street
Rochester, N. Y.

•

Formigli Corporation
2050 Locust Street
Philadelphia, Pa.

•

Economy Cast Stone Co.
15 East Franklin Street
Richmond, Virginia

•

Ready-to-Pour Concrete Co.
P.O. Box 1075
Idaho Falls, Idaho

•

Empire Prestressed Concrete of Oregon
9255 N.E. Halsey Street
Portland, Oregon

•

Precrete, Inc.
130-01 Northern Boulevard
Corona, N. Y.

•

Lewis Manufacturing Co.
3044 S.W. 28th Lane
Miami, Florida

•

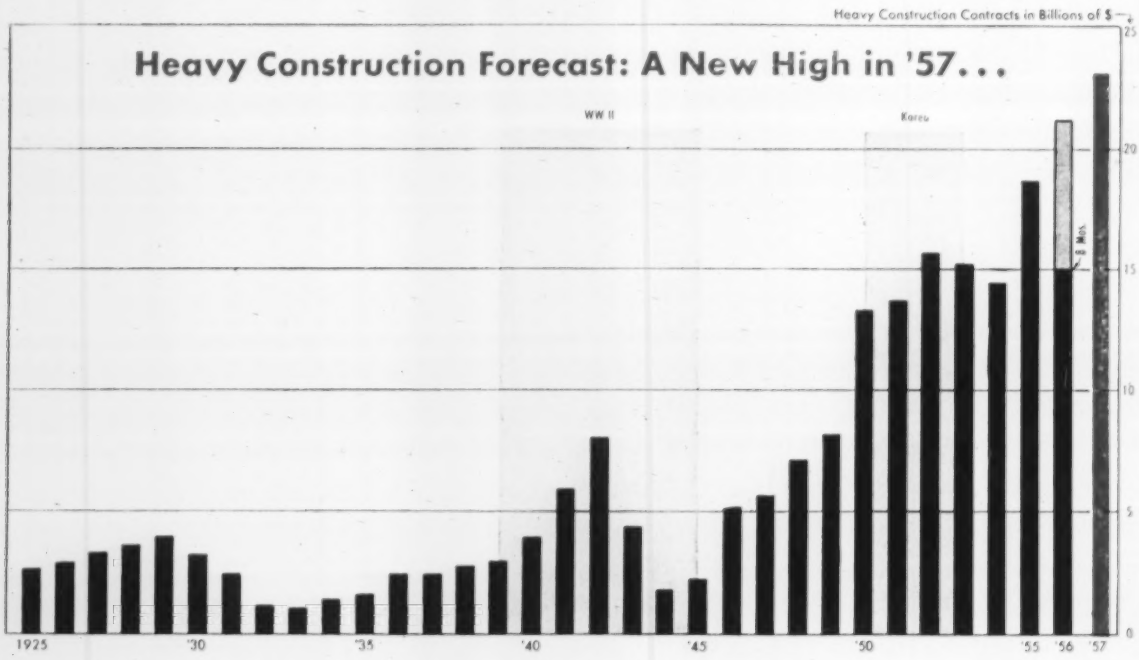
Precast Concrete Limited
P.O. Box 398
Calgary, Alberta, Canada

•

Schell Industries Limited
Woodstock
Ontario, Canada

•

Pretens, Inc.
Avenida Labra 800
Santurce, Puerto Rico



But . . .

New Business Walks Tight Money Wire

ENGINEERING NEWS-RECORD and CONSTRUCTION DAILY today forecast a 10% increase in heavy construction contract awards to a new record high of $23.2 billion in 1957.

The prediction—on the surface—indicates that the current boom in total volume of heavy construction will continue. But a few dark clouds are gathering in construction's generally sunny skies.

While the total of new contractor business next year is expected to top 1956 by 10%, a substantial part of the increase will be due to an expected rise in construction costs.

Because of this, the physical volume of contracts next year probably will move ahead of 1956 by only 5.3%.

Furthermore, the heavy construction scene will be more unbalanced next year than in 1956, if these estimates prove accurate. That's because nearly all of the increase in private construction awards and in state and municipal contracts can be traced to federally-sponsored programs.

These programs include: the new federal-aid highway plan; Capehart military housing (included in the private housing category because it is privately owned and financed); and federal buildings constructed under the federal lease-purchase program. These federal buildings (post offices, court-houses, office buildings) appear in the private commercial building category because they are privately owned and privately financed.

Without the impetus of these federally-sponsored programs, private commercial building and housing probably would fall below the 1956 estimates next year. The reason: an assumption that the present tight money market will continue into 1957.

Tight credit will hurt private mass housing, commercial building and state and municipal projects, which are generally financed through sale of bonds.

Financial experts have flatly predicted that mortgage money will be as scarce in 1957 as it has been throughout most of this year. And, there is no indication that the municipal bond market will be easier next year.

Industry no longer relies on retained earnings to finance capital improvements. This year, it has tied up vast amounts of outside capital—including a large volume of bank loans—to pay for its record expansion.

Spending for this industrial expansion won't hit full stride until some time in 1957. And, expansion plans will stay close to the peak rate from 1957 to 1959, so that industrial borrowing will remain heavy.

In fact, if industry shifts its bank debt into bonded debt, the money market will continue to be under pressure and municipal bond issues—needed to finance local public works—will have a difficult time competing for the investor's dollar.

• **Slight downturn for industrial**—ENR is predicting a 6% decline in industrial building contracts in 1957. While awards are forecast at the second highest rate—in dollar volume—for any year in history, it is too much to expect that this type of construction can match the booming 1956 total. One reason is that the well-publicized coming of the steel strike created an unprecedented rush to award new indus-

Heavy Construction Outlook for 1957

Preliminary Forecast of Engineering News-Record—Construction Daily Contract Awards, in Millions of $

	1955 Actual	1956 8-Mos. Estimate	1957 Prelim. Forecast	Per Cent Change 1955-56	Per Cent Change 1956-57
All Construction	**$18,722**	**$21,195**	**$23,220**	**+13**	**+10**
Private	11,672	13,150	14,020	+13	+ 7
Public	7,050	8,045	9,200	+14	+14
State & Municipal	5,415	6,310	7,200	+17	+14
Federal	1,635	1,735	2,000	+ 6	+15
Public					
Waterworks	314	360	390	+15	+ 8
Sewerage	402	600	600	+49	0
Bridges (incl. private)	545	600	725	+10	+21
Highways	2,137	2,500	3,200	+17	+28
Earthwork, irr., drain.	546	700	930	+28	+33
Building, excl. housing	1,741	2,000	1,900	+15	− 5
Housing	246	275	285	+12	+ 4
Unclassified	1,121	1,010	1,170	−10	+16
Private					
Housing	6,138	5,500	6,275	−10	+14
Commercial	1,656	1,700	1,860	+ 3	+ 9
Industrial	2,951	5,100	4,800	+73	− 6
Unclassified	925	850	1,085	− 8	+28

Figures are in current dollars. 1957 Estimate assumes and includes 3.5% rise in ENR Building Cost Index and in ENR Construction Cost Index.

trial building contracts in the first half of 1956.

Industrial building contracts traditionally have moved up or down violently. Even though industry now plans on a longer-term basis than ever before, awards still ride the roller coaster for this type of work. Substantial shifts in contract volume are likely to characterize the industrial building sector of the construction market during the next two to three years.

There is evidence of a slackening already in the rate at which new industrial building projects are being proposed. The twelve-month moving average has just passed a peak, indicating that some slowdown in contract awards can be expected in the second half of this year and in the first half of 1957.

ENR is forecasting a 5% dip in contract awards for public building other-than-housing. This is because of a shift in federal buildings to the lease–purchase method which, in effect, transfers such construction to the private commercial building total.

State and local buildings other than schools are expected to show some decline. School construction should go up slightly, although financing problems will limit the rise.

• **Changing market**—While prospects indicate an even larger 1957 dollar volume of contracts than this year's record-smasher, the year will bring problems to contractors and to some owners and suppliers.

The tight supply of money will crimp the private construction market, particularly mass housing and commercial building. Some contractors may be tempted to switch from this type of work to non-building heavy construction, such as highways. When this means a complete revamping of operations, the contractor runs a big risk.

Further, the capacity of most contractors has been growing at such a fast clip that they are able to handle more work—more than even the record amount of new construction business signed up in 1956. This is especially true for highway work, according to studies made by ENR and the American Road-Builders Assn.

That means that competition for new jobs will be keen next year.

Suppliers who are tied closely to some particular segment of the construction industry will also face the implications of a changing market or an unbalanced boom.

And, owners who are unable to get financing for their projects next year, will face the prospect of higher costs when delayed jobs get under way at some future date.

And, ironically, even with more work expected to reach the contract stage next year than in 1956, the nation will fall still further behind the growing demand—and growing need—for many types of construction.

Housing Warning

Homebuilders' president says costs, tight credit shrink new housing sales

Homebuilders are being told to cut present production of houses and to go easy in acting on plans for future projects.

The tight money market and continually rising land and construction costs have wiped out a large part of the lower-cost housing market. This has forced homebuilders into custom-built operations or luxury housing financed through conventional mortgages, according to Joseph B. Haverstick, president of the National Association of Home Builders.

In a special letter to NAHB's 39,000 builder members, Haverstick warned:

1. "Do not start construction or advance very far in project planning without written financing commitments for your long term mortgage needs.

2. "Keep production closely related to sales volume. This is not time to risk either unsold or unfinanced inventories.

3. "If using (mortgage) warehousing, don't depend on extensions of warehousing agreements—they may not be forthcoming.

4. "Don't assume that the tight money market is temporary—because it may well get tighter.

5. "If your profit margin has been squeezed down to the vanishing point (as many have), cut back your production instead of risking a loss from which you may not recover."

• **Cites rising costs**—"Homebuilding costs—land, materials and labor—are rising rapidly," Haverstick said. "The current upward pressure on wages was given its most recent boost by settlement of the steel strike."

Higher land improvement costs also enter the picture, according to Haverstick. He said that shortages of community facilities, such as schools, sewers, and water supply, force land costs up and result in higher home prices.

"In simple terms," Haverstick said, "we are being priced out of the mass market."

• **Builders switch**—"We narrow our potential market as more of us . . . shift to the higher-priced home—the $20,000 to $25,000 bracket, for example," Haverstick warned. He added that in traveling across the nation, he saw more and more builders switching to the luxury home market.

Haverstick made it clear that he feels this trend is unhealthy for the

homebuilding industry. And, he pointed out how the tight money market affects this trend.

"As lenders become less inclined to lend on FHA-VA mortgages," Haverstick said, "they become more selective, requiring higher downpayments, shorter (amortization) terms, higher credit standards for our customers, and larger houses. This only tends to accelerate the pressure (on homebuilders) to seek the higher income market —which, in reality, is an ever-narrowing market as more builders compete for the limited number of customers in this bracket."

Highway Expenditures Set At $8.2 Billion for 1956

A record-breaking $8.2 billion will be spent for all highways in the U. S. during 1956, the Bureau of Public Roads said last week. Of the total more than $5.5 billion will go for construction, the remainder for maintenance, right-of-way acquisition and other needs.

The figure does not include initial costs of the $32.5-billion highway program recently approved by Congress. The bureau said that although $1.1 billion has been allocated for the new program for the current fiscal year, spending from this source and from state matching funds won't really get started until after Jan. 1, 1957.

Counting $438 million that will be spent to retire past highway obligations, BPR said that the 1956 total will exceed by about $800 million the expenditures for all purposes for 1955, and by $1.7 billion the spending for 1954.

Construction Outlays Set Record for Eight Months

With the aid of a record August, expenditures for construction put in place set a new high of $28.4 billion for the first eight months of this year, the government reported last week.

August construction set a new mark for that month of $4.3 billion, up 2% over July, and 1% above August, 1955. August was the third consecutive month in which expenditures for new construction topped $4 billion.

New all-time monthly highs were set for industrial buildings, office buildings and warehouses, social and recreational buildings, public utilities, highways, public schools, sewer and water facilities and public service enterprises, such as power projects.

Private residential construction put in place in August was valued at $1.2 billion, down 1% from July—and down 15% from August, 1955.

Urban Renewal

Tentative plans approved for $159-million project

The Los Angeles City Council has approved a tentative plan for redevelopment of the semi-slum Bunker Hill area in downtown Los Angeles.

The Bunker Hill project would clear a 127-acre site for private commercial and residential development in accordance with a master plan. Total cost of the project is estimated at $150 million to $299 million, including a joint city-federal expenditure of about $40 million for site clearance and basic facilities.

Final plans, however, will need approval of both the City Council and the federal government before construction can start.

The City Council's approval of the tentative plan came after heated public hearings, during which Bunker Hill property owners supported a substitute measure calling for rehabilitation of existing structures.

Although it voted for the master redevelopment plan, the council also ordered the city building department to survey the present buildings in the area and to submit a report within 90 days on the feasibility of a rehabilitation program.

Further opposition developed when the Three-Fifteen South Bunker Hill Corp., a property owner, asked Superior Court for an injunction to prevent the city from proceeding with the redevelopment plan.

But Los Angeles observers feel the urban renewal plan will go ahead despite the opposition.

Business Briefs . . .

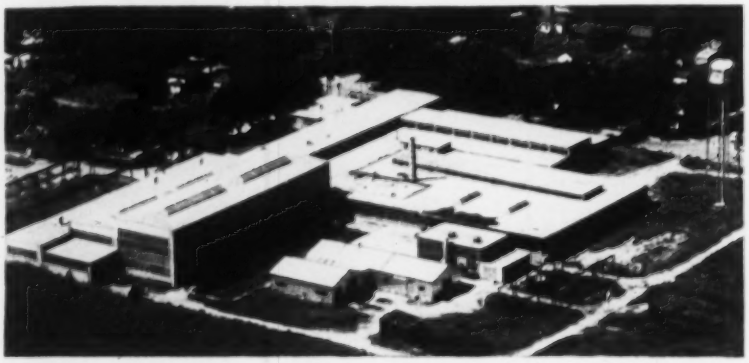
• **Celotex sets record**—Celotex Corp. set a new nine-month sales record of $57.5 million, up 14% over the comparable 1955 period. Net income was up, too. Nine-month earnings this year: $4.6 million. Same period last year: $3.3 million.

• **Merger planned**—American-Marietta Co., producer of paints and other building materials, plans to absorb Dragon Cement Co. through a stock deal.

• **Seek tax**—U. S. Steel has applied to the Office of Defense Mobilization for a fast tax write-off certificate to help finance a $94.4 million expansion of the Fairless Works.

• **Walworth financing**—The Walworth Co., manufacturer of industrial valves and fittings, has placed $12 million in 4½% notes with four insurance companies. Proceeds of the financing will be used to retire $6 million in outstanding debentures, $3 million in bank loans, and $3 million for plant expansion and modernization and additions to working capital.

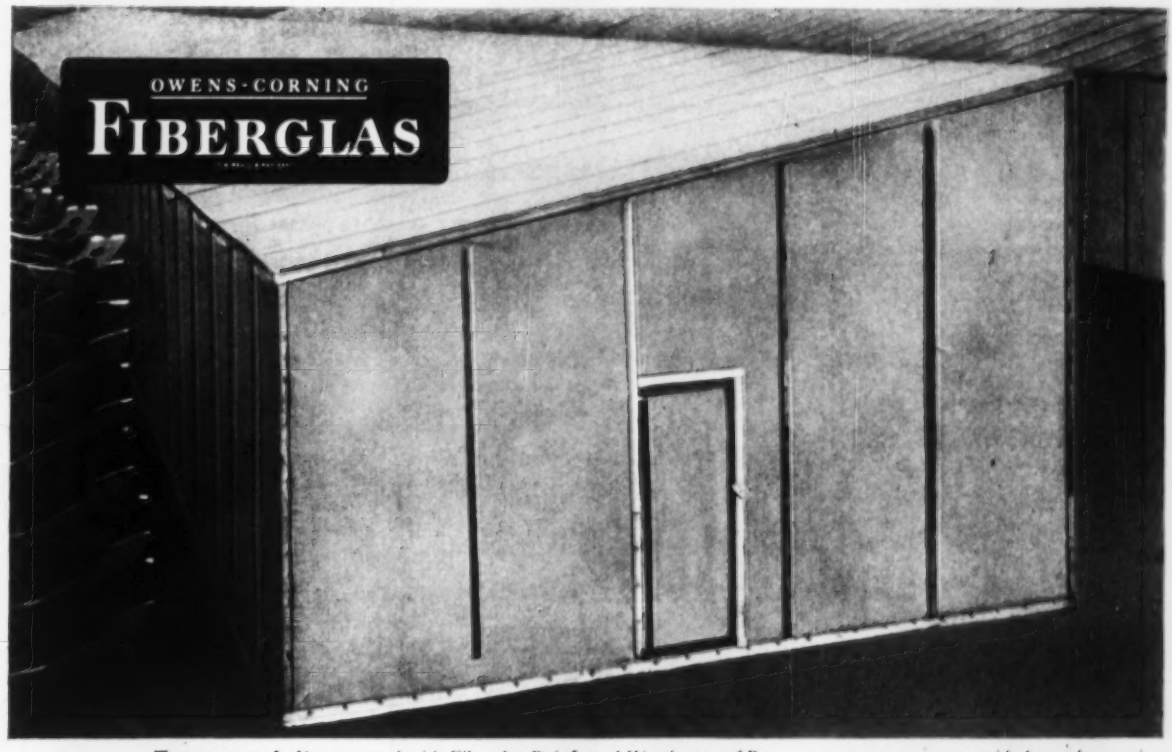
• **University expansion**—The University of Michigan has placed an ambitious $114.7 million five-year construction program before state budget makers. The program includes $14.7 million for medical facilities. Thirty-one other projects would cost a total of $90 million. Among the individual projects: $5.5 million for a combination engineering classroom and office building.



Prestressed Concrete Firm Expands

One of the nation's largest prestressed concrete plants (127,800 sq ft) is this Rochelle, Ill., facility purchased by Midwest Prestressed Concrete Co. as part of a $750,000 expansion program.

Midwest, which has confined its past operations to prestressed concrete bridge beams, soon will begin initial production of concrete piling as well as roof and structural members.



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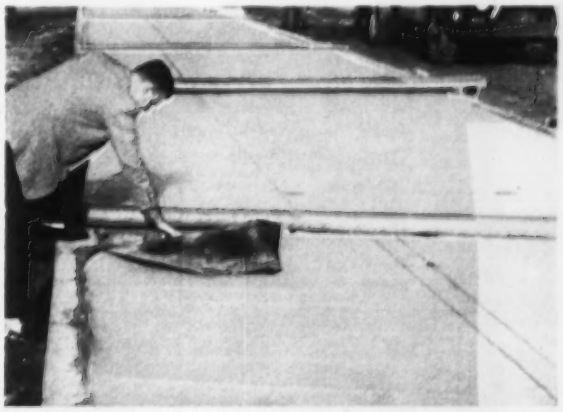

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Engineers End Eastern Strike

Federal court returns a state-wide jurisdictional dispute with New Jersey building contractors to the NLRB

A state-wide strike of operating engineers against building contractors in New Jersey ended last week under a truce reached in federal court.

The strike against members of the New Jersey Building Contractors Association had been called on Aug. 27 after the association had refused to accede to union demands that the contractors agree to a contract clause recognizing the right of engineers to maintain various pieces of small power equipment. Unfair labor practice charges were filed against the union with the National Labor Relations Board, which in turn applied to the United States District Court in New Jersey for an injunction to halt the strike. The case now returns to the NLRB for a hearing and a decision.

Although a number of contractors went along with the union by signing separate agreements, millions of dollars worth of public and private construction were tied up by the strike.

Local 825 and the building contractors have been bickering over the engineers' maintenance claims for more than two years. The contractors view the dispute as a jurisdictional problem affecting several of the other building trades and look to the NLRB for a "final and absolute determination" of the issue. But it's unlikely that the board will decide the merits of the claim.

• **The issue**—The clauses the engineers wanted in their contract were these:

(1) Where 2 or more concrete vibrators, leveling machines, and/or portable generator machines or power buggies are being used by the employers on any one day, one engineer will be required to maintain said machine at the engineer's regular rate pay.

(2) The general contractor or employer shall be responsible to the union to insure that all subcontractors working for him carry out the terms and conditions of this agreement.

The contractor association feels that the maintenance of small tools is an incident of their operation, which is performed by crafts other than the engineers. By accepting the first clause, the contractors said, they would open the flood gates to a wave of jurisdictional disputes because they would be reassigning to engineers under a state-wide contract work already assigned to other crafts under local agreements.

But the engineers contend there is no jurisdictional problem because they are not claiming work performed by other crafts and because they have always had jurisdiction over maintenance. New Jersey building contractors now hire about 10% of the local's members. The rest are largely in heavy and highway construction, where the clause is said to appear in a substantial number of contracts.

The contractors also label the maintenance claim as a form of featherbedding, which, they say, at current wage rates could add to building costs another $154 a week for each engineer required to be hired under the clause.

When the strike was called, the contractors fell back upon the Taft-Hartley provisions that forbid featherbedding and interference with work assignments. The work assignment provision denies a craft the right to strike to force an employer to assign work to it instead of to another craft, and the other provision outlaws attempts to get paid for services that are not rendered.

On the face of the charges the weaker of the two is the feather-bedding claim because the law requires a showing of "an exaction for services which are not performed or not to be performed." The contractors contend, however, that with the exception of a little oiling and slight adjustments, there's no real job maintenance for the engineers, the tools being returned to the manufacturer if any serious breakdown occurs.

So the big problem for "final adjudication" by the NLRB is one of work assignments—whether the engineers, by refusing to work, can attempt to force employers to give maintenance work to them instead of to other crafts. Essentially, the question is whether this is a jurisdictional problem and whether the strike weapon can be used as a means of forcing settlement. As it has in the past, the board can answer the question and dispose of the case without deciding the merits of the claim, thus

throwing the problem back again into the forum of collective bargaining where one of the leading questions is whether a union should expect contractors in building construction to follow patterns set by those in heavy construction.

In the meantime, the engineers, under threat of an immediate injunction, have agreed to return to work, to withdraw their pickets and not to enforce the maintenance clauses in those contracts already signed with building contractors.

The Kohler Boycott

Labor wins support of Michigan communities

Lincoln Park, a suburb of Detroit, has joined the list of municipalities that have given their support to efforts of organized labor to win the Kohler strike in Sheboygan, Wis.

At a time when political interest in labor's welfare is growing keen, the Lincoln Park Council last week passed a resolution which states: "The city shall not purchase goods manufactured by a firm convicted of, and still in violation of federal labor laws, or formally charged by the NLRB general counsel of violations." River Rouge, a neighboring community, is taking similar action.

The resolution was introduced at the request of the United Automobile Workers, whose Local 833 has been on strike against Kohler since 1954. The company, one of the nation's leading manufacturers of plumbing fixtures, has continued its operations with nonunion labor. With the assistance of other labor groups (ENR, Aug. 2, p. 115), the UAW is conducting a vigorous campaign to boycott Kohler company's products on a national scale.

Resolutions similar to the one in Lincoln Park has been passed in a number of communities, including Boston and Waterbury, Conn.

Detroit attorneys look upon the council form of action as a "direct attack" on communities and businessmen with union problems. But Gorden Gregory, a member of the UAW legal staff, said "to do nothing toward adopting this resolution would give tacit approval to a strike-bound company and its products."

As originally introduced, the Lincoln Park resolution was directed specifically at Kohler and it took three weeks to reach the compromise of general phraseology.

(*Labor continued on page 152*)

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13-ft, 4-in. dump height
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3 YD

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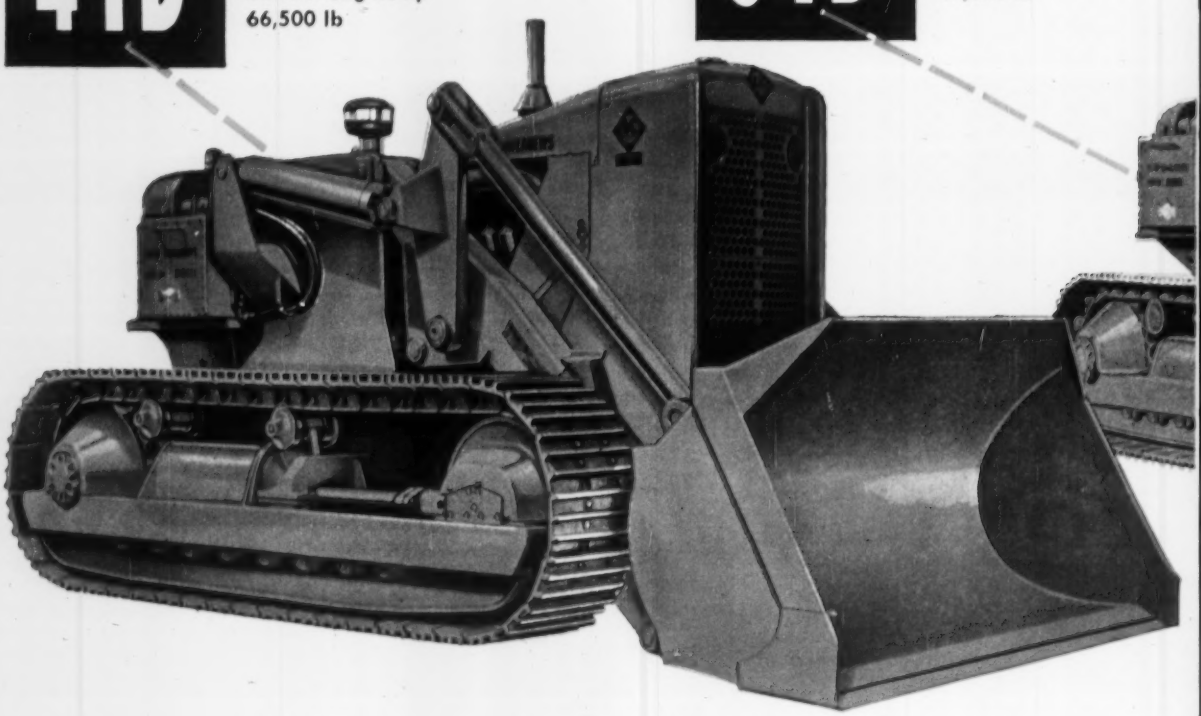

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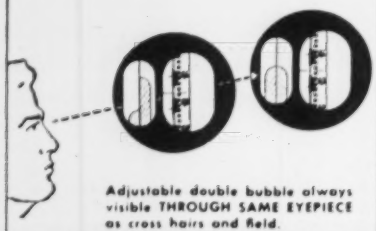

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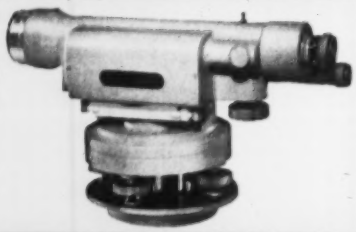

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Jobless Benefits

State court dimisses employers' GAW suit

Efforts to test the legality of paying Connecticut state unemployment compensation benefits to workers who receive payments under guaranteed annual wage plans failed when the Superior Court in Hartford dismissed for lack of jurisdiction a suit filed by the Manufacturers Association of Connecticut.

The court ruled that the association had no standing in court to challenge the jobless benefit eligibility of employees covered by private supplementary unemployment benefit plans. The group had filed its action as a general taxpayer, the court noted, but the unemployment funds involved do not come from general taxation.

In its suit, the association contended that simultaneous payment of state and GAW benefits violates the State Unemployment Compensation Act, which prohibits dual payments. The Connecticut attorney general had previously ruled that a dual payment situation is not created because payments under the private plans are not wages within the meaning of the law.

Nearly half the states now have approved integration of supplemental unemployment benefits with state unemployment compensation payments. Ohio, Indiana, Virginia and North Carolina have ruled against integration.

According to the North Carolina ruling, for example, payments under GAW plans are considered wages for unemployment compensation purposes. Thus the benefits received render employees ineligible for state payments and must be included in the payroll figures on which the unemployment tax is based.

Building Trades Official Hits Force Account Work

Extensive use of maintenance personnel by Erie County, N. Y. has been protested as unfair to building tradesmen and contractors alike by M. J. Crawford, secretary of the Buffalo

(*Labor continued on page 154*)

Wage-Hour Law Given Wider Coverage

The Wage and Hour Division of the U. S. Department of Labor has officially adopted a liberal approach to the application of the Fair Labor Standards Act to building and construction employees.

In an interpretive bulletin issued by Division Administrator Newell Brown, the division takes the position that the law's application cannot be based on a rigid formula and rejects the "new construction, concept as a reliable test for determining coverage. The bulletin follows closely the U. S. Supreme Court dictum of the Vollmer case, in which employees working on a new canal lock were held to be engaged in the improvement of an existing interstate waterway and not in "new construction".

The law applies its minimum wage and overtime pay (for work in excess of 40 hours a week) provisions to employees engaged in interstate commerce or in the production of goods for interstate commerce. Big headache in the past has been this: How do you tell what construction projects fall in the area of interstate commerce?

In the future, the bulletin says, employees will be considered subject to the law when engaged in construction work which is physically or functionally integrated or closely identified with an existing instrumentality of interstate commerce or a facility for the production of goods for interstate commerce. New construction or construction work that is physically separated from an existing covered facility doesn't necessarily escape the law's application.

Construction work covered by the law includes the maintenance, repair, reconstruction, redesigning, improvement, replacement, enlargement or extension of a utility or other enterprise or facility that's an interstate commerce.

According to the bulletin, production facilities within interstate commerce include mines, manufacturing and processing plants, power and water plants, banks, shipyards and similar establishments.

Examples of instrumentalities of interstate commerce cited in the bulletin are railroads, waterways, airports, highways, city streets, and telephone and pipeline systems.

Although the law does not apply to purely local construction work, such as the erection or repair of dwellings, schools and churches, employees who regularly order or receive goods from outside the state for use on such projects may be covered by the law.

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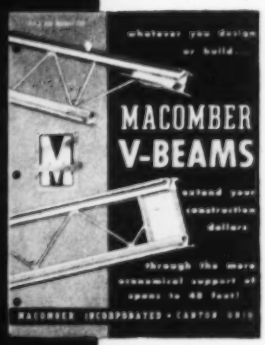
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OFFICIAL PROPOSALS

Bids: September 28, 1956

Saint Paul, Minnesota

STATE PROJECT
NOTICE TO CONTRACTORS

Sealed proposals will be received until 10:00 A. M., September 28, 1956, by the Commissioner of Highways for the State of Minnesota, at the office of the Highway Department, 1246 University Avenue, St. Paul, Minnesota for the construction of the State Project listed below. Proposals will be opened and read publicly by the Commissioner of Highways at the above address immediately after the hour set for receiving bids.

The attention of bidders is directed to the special provisions covering the subletting or assigning the contract.

The minimum hourly wage to be paid on the following project shall be as follows:

WAGES:

AREA	SKILLED LABOR
1 and 2	$2.63 to $3.425
Intermediate Grade Labor	Unskilled Labor
$2.25 to $3.00	$1.95 to $2.925

A detailed list of wage scales for the project and the governing wage area will be found in the special provisions for this project.

The bidder's attention is also directed to the special provisions contained in the proposal requiring the payment of prevailing local wage rates prescribed under local collective bargaining agreements if said prevailing local wage rates are higher than the minimum wage rates set forth in the special provisions of the proposal. It shall be the obligation of bidders to obtain complete information regarding the application of said prevailing local wage rates.

BRIDGE:

S.P. 2727-96 (T.H. 65-50), Minnesota project 1 390-4 (4), located in Bloomington in Hennepin County. The minimum wage rates for this project have been predetermined as required by law and are set forth in the bid proposal. These rates are the same as prescribed for wage areas 1 and 2. This project comprises bridge No. 6557, total length 1387 feet, consisting of 169-200-224-200-224-200-169 foot deck girder spans with 2—27 foot roadways, over the Minnesota river. (Plans $2.00)

Proposals, plans and specifications may be examined and secured at the office of the Highway Department.

Requests for plans must be submitted on construction form No. 1227, accompanied by check, draft, or money order, payable to the Commissioner of Highways.

Bids must be accompanied by a certified check made payable to the Commissioner of Highways or a corporate surety bond made in favor of the State of Minnesota in an amount as shown in the schedule printed on the back of the proposal form.

M. J. HOFFMAN,
COMMISSIONER OF HIGHWAYS

Bids: September 27, 1956

Construction of Roadway Lighting

PENNSYLVANIA TURNPIKE
COMMISSION
Harrisburg, Pennsylvania
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania until 10:00 a.m., Eastern Daylight Saving Time, the 27th day of September 1956, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room #3, North Office Building, State Capitol, Harrisburg, Pennsylvania and publicly opened and read aloud for the following contract:

For the construction of Roadway Lighting for the Harrisburg East Interchange on the Pennsylvania Turnpike System, Contract No. 252, Dauphin County, Pennsylvania.

The work to be performed under this contract consists of construction of Electrical work in accordance with the specifications and drawings.

Copies of Plans, Specifications and Contract Documents are on file and open to public inspection on 13 September 1956 at the office of the Pennsylvania Turnpike Commission in Harrisburg, Pennsylvania. Plans, specifications and contract documents will not be available before this date for inspection or for mailing to prospective bidder.

Plans and contract documents may be obtained from the Commissioner upon deposit of ten ($10.00) dollars for each set. No refund will be made for contract documents returned, unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy.

Remittances are payable by check or P.O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and contract documents.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

The Pennsylvania Turnpike Commission reserves the right to waive any informalities in or to reject any or all bids.

PENNSYLVANIA TURNPIKE
COMMISSION
John F. Byrne,
Secretary and Treasurer

Harrisburgh, Pennsylvania
5 September 1956

Bids: September 27, 1956

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TRANSMISSION LINES
NEW YORK
SPECIFICATION NO. PA-6-11
ST. LAWRENCE CONTRACT NO. T-1

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the clearing and chemical treatment of right-of-way of the Barnhart-Plattsburgh Transmission Project, New York, until 10:30 AM Eastern Daylight Saving Time on the 27th day of September 1956, at the Authority's office, 270 Broadway, Room 1305, New York, New York, at which time and place the proposals will be publicly opened and read aloud.

The estimated work consists of:
550 acres—clearing
650 acres—chemical treatment

The work shall be completed on or before September 1, 1957.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) dollars, for initial set and Five ($5.00) dollars for each additional set, no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-6-11

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4758) will be received at Ephrata, Washington, until October 9, 1956, for furnishing labor and materials for Earthwork and Structures for Block 79 Laterals and Wasteways, West Canal Laterals, Columbia Basin Project, Washington. Location near Quincy, Washington. Principal items are 325,000 cu. yds. excavation; 550 cu. yds. concrete in structures; 15,900 lin. ft. concrete pipe, 15- to 54-inch; 155 metal slide gates; and other work. To be completed by March 1, 1958. For particulars, address Bureau of Reclamation, P. O. Box 368, Ephrata, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

. . . Labor

Building and Construction Trades Council.

Crawford, in a letter to the County Board of Supervisors, gave these reasons for his protest:

- Work is being performed by the county at rates less than those prevailing in the area for similar classifications.
- The county is in competition with contractors who bear a sizable amount of the tax burden.
- Maintenance personnel are being placed in competition with building tradesmen.

Concerned over the "tremendous amount" of work now being performed by maintenance workers, Crawford has asked for a hearing on the problem.

Labor Briefs . . .

- **State merger**—Merger of Connecticut AFL and CIO organizations has been put off until next September to give time to work out merger detail. Agreement has been reached on "every major issue" and officials report the merger has not been "torpedoed."

- **Shorter work week?**—The AFL-CIO holds a national conference this week to discuss these questions: Do workers want shorter hours? Is a shorter workweek possible? Will automation require it? Conference is of an informational nature—no policy decisions will be made.

- **Anti-union laws**—A Florida court has ruled unconstitutional a City of Madison ordinance requiring union organizers to obtain costly city licenses. A federal court has knocked down a similar ordinance in Carrollton, Ga., as "exhorbitant and punitive" but a Georgia court has refused to upset one in Baxley, Ga., setting the license fee at $2,000 a year, plus $500 for each member obtained.

- **Workmen's compensation**—The Montana Supreme Court has ruled that a highway construction worker, a resident and commuter from Montana injured on a project in Idaho, is eligible for Montana benefit payments. The law, said the court, requires a liberal interpretation in favor of the claimant.

- **At it again**—The jurisdictional dispute between carpenters and lathers over acoustical ceiling work has cropped up in Cleveland, Ohio, where 16 building projects have been hit by work stoppages. Employers have gone to the NLRB with charges of unfair labor practices against the lathers.

OFFICIAL PROPOSALS

Bids: September 27, 1956

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Canal Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 27th day of September, 1956, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name of Highway	Miles	Type	Bid Deposit	Department Estimate
DISTRICT No. 1, G. L. Nickerson, District Engineer, 333 Broadway, Albany, N. Y.						
Albany and Rensselaer	TABS 56-71	New York State Thruway—Berkshire Section (Hudson River Bridge & Approaches)	1.074	Reinf. Conc. Substructure	$450,000 Plans $15	$8,629,000
Essex	FASS 56-8	Taliaw us-Schroon River Pt. Proj. No. S-1047(3)	1.67	Asp. Conc. Opt. = 1.60 mi. Misc. Work = 0.07 Mi.	$20,000 Plans $10	368,000
Essex (Rte. 28N)	FARC 56-66	Aiden Lair-Newcomb Pt. 1 & 2 S.H. 5187-756 Proj. No. S-2101(1)	7.38	Asp. Conc. Opt. = 7.35 Mi. Misc. Work = 0.03 Mi.	$80,000 Plans $25	1,470,000
Rensselaer (Rte. 7)	FARC 56-74	Whitehouse Bridge-Vermont State Line, S.H. 1426 Proj. No. F-570(6)	0.12	Asp. Conc. Opt. = 0.06 Mi. Misc Work = 0.06 Mi. Reinf. Conc. Box Br. 21.3'	$1,300 Plans $10	77,000
Rensselaer	BT 56-1 ST 56-8	New York State Thruway—Berkshire Section-Sub. B-2 (Route 9 to Rensselaer-Columbia County Line) and 3 Secondary Cross Roads	3.13 (5.02 Acc.)	Bit. Mac. Ty. 1 = 0.90 Mi. Misc. Work = 0.02 Mi. 11 Hy. Sups. Comp. I-Beams 156.6', 155.3', 156.6', 140.6', 133.6', 142.1', 143.3', 148.4', 148.1', 109' & 109' 2 Brs. Comp. I-Beams 77' & 77'	Plans $100	
Schenectady	M-56-7	Lock 9 Erie Canal, Town of Glenville	....	Furnishing & Installing New Upper Gates; Plating Portions of Upper Approach Walls & Other Misc. Work	$5,500 Plans $10	101,000
DISTRICT No. 3, William Robinson, Dist. Engr., 301 E. Water St., Syracuse, N. Y.						
Oswego (Rte. 57)	FAC 56-10	City of Fulton: North-South Arterial (First, Fourth & Second Sts.) Proj. No. U-583(7)	2.49 (0.42 Acc.)	Asp. Conc. Ty. 2A = 1.77 Mi. 9" Cem. Conc. Pav. 24'-52' Var. Wide = 0.72 Mi. Misc. Work = 0.42 Mi.	$60,000 Plans $15	1,100,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, N. Y.						
Monroe	FASH 56-7 FASH 56-8 FARC 56-76	Winton Road-Sea Breeze, Pt. 2 Ridge Road-East, Pt. 1 Winton Road-Sea Breeze, Pt. 1, FASH 52-1 Rochester-Webster, Pt. 1, SH 98 Proj. No. U-1097(2); U-11161)	2.53 (4.00 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Wide = 2.45 Mi. Asp. Conc. Opt. = 3.95 Mi. Misc. Work = 0.13 Mi. 3 Hy. Sups. Comp. I-Beams 157', 198' and 152' 1 Ped. Overpass Plate Gird. 195'	$200,000 Plans $50	3,757,000
DISTRICT No. 8, K. G. Rauer, Acting District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Orange (Rte. 32 & 300)	FARC 56-75	Newburgh-Shawangunk, S.H. 161 Proj. No. F-416(3)	4.80	Asp. Conc. Opt.	$22,000 Plans $10	409,000
DISTRICT No. 10, M. E. Gotl, District Engineer, 325 West Main Street, Babylon, L. I., N. Y.						
Queens (Rte. 25D)	FA HHE 56-2	Horace Harding Expressway Sect. 1 (Cont. 3) Proj. No. I-862(9)	0.86 (3.03 Acc.)	9" Cem. Conc. Pavt. With Carb. Black 2 @ 36' Var. Wide = 0.77 Mi. 9" Cem. Conc. Pavt. Var. Wide = 0.42 Mi. Asp. Conc. Opt. = 2.70 Mi. 3 Brs. Comp. I-Beams 439.9', 382' and 335.1' 1 Ped. Overpass Steel Gird. 131.5'	$350,000 Plans $100	6,244,000

Any projects in this letting that are on the Federal Aid highway system are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON,
SUPT. OF PUBLIC WORKS

Bids: September 25, 1956

Specifications No. PA-5-11023
St. Lawrence Contract No. 31

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
FOR
RESERVOIR CLEARING
BETWEEN
WADDINGTON AND BARNHART
ISLAND POWER PLANT
ST. LAWRENCE COUNTY, NEW YORK

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the Reservoir Clearing between Waddington and Barnhart Island Power Plant, St. Lawrence County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 25th day of September 1956, at the Authority's office, 270 Broadway, Room 1305, New York, New York, at which time and place the proposals will be publicly opened and read aloud.

The work consists of a total of approximately 9,200 acres of clearing divided into five schedules as follows:

Schedule No. 1: Approximately 1,900 acres
Schedule No. 2: Approximately 1,900 acres
Schedule No. 3: Approximately 3,100 acres
Schedule No. 4: Approximately 1,900 acres
Schedule No. 5: Approximately 100 acres
Schedules No. 6, 7 and 8: Bidders may quote on any one, any combination or all of the above schedules under Schedules No. 6, 7 and 8.

All of the clearing work under any schedule, combination of schedules or all schedules shall be completed on or before May 1, 1958.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, may be inspected by prospective bidders during office hours and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Twenty-five ($25.00) dollars per initial set and Ten ($10.00) dollars per set for additional sets, no part of which will be refunded.

Bids will not be restricted to American contractors.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the gross sum bid as defined in the Information for Bidders.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-5-11023

Bids: September 25, 1956

Contract 453

WEST DELAWARE TUNNEL

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M. Eastern Daylight Saving Time (10:00 A.M. Eastern Standard Time), on Tuesday, September 25, 1956, for Contract 453, for the construction of a portion of the West Delaware Tunnel of the Delaware system, comprising the construction of about 26,000 linear feet of tunnel, including Shaft 4 approximately 380 feet deep, located in the Town of Colchester, Delaware County, and in the Town of Rockland, Sullivan County, New York.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1317, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: October 3, 1956

The Port of New York Authority

BIDS: OCTOBER 3, 1956
TUNNEL FLUSH TRUCK
LINCOLN TUNNEL

Sealed proposals for furnishing a tunnel flush truck for Lincoln Tunnel, will be received at the office of the Director of Purchase and Administrative Services of The Port of New York Authority, Room 909, 111 Eighth Avenue, New York 11, New York, until 11:00 A.M., Wednesday, October 3, 1956, at which time and place said proposals will be opened and read.

Contract documents may be obtained at the office of the Director of Purchase and Administrative Services, Room 909.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

U. S. Government

Sealed bids for construction of the Physical Education and Activities Building, Gallaudet College, Washington, D. C., will be received until 2:00 P.M., EDST, Oct. 4, 1956 in Rm. 7109, GSA Regional Office Bldg., 7th & D Sts., S. W., Washington, D. C. and then publicly opened in Rm. 7109. Contractors interested in bidding the entire project may obtain bidding material from Public Buildings Service, Rm. 1304, GSA Bldg., 19th & F Sts., N. W., Washington 25, D. C. Phone: EX-34900, Extn. 2397. Commissioner of Public Buildings, General Services Administration.

OFFICIAL PROPOSALS

Bids: October 16, 1956

Construction of Pumping Station

ADVERTISEMENT

Notice is hereby given that sealed bids will be received in accordance with the law by the Hampton Roads Sanitation District Commission, until three o'clock P.M., Eastern Standard Time on the sixteenth day of October, 1956 at the office of the Commission, Board of Trade Building, Norfolk, Virginia, for furnishing materials and performing the labor for constructing a combined sewage pumping station and office building including connecting gravity, bypass and force main sewer lines, at the corner of Plume and Atlantic Streets, all in accordance with the plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be examined without charge either at the office of the Commission or at the office of the Consulting Engineers. Copies thereof may be obtained either from the Commission or from the Consulting Engineers upon deposit of Fifty ($50) Dollars. This sum will be returned to any bidder submitting a bid or to any sub-contractor who is certified by a valid bidder as having included a sub-contract bid in the amount of Twenty Thousand ($20,000.) Dollars or more, upon return of the plans and specifications in good condition within ten (10) days after the date on which bids are received. Otherwise, the entire deposit will be forfeited.

Bidders are required under Title 54, Chapter 7, Code of Virginia, to show evidence of certificate of registration before bid may be received and considered on a general or sub-contract of Twenty Thousand ($20,000.) Dollars or more. The bidder shall place on the outside of the envelope containing his bid and in his bid over his signature the following notation: "Registered Virginia Contractor No. ....."

Each proposal must be accompanied by a certified check in amount equal to one (1%) percent of the proposal, together with a bid bond in amount equal to ten (10%) percent of the proposal. The checks and bid bonds of all except the three (3) lowest bidders will be returned within three (3) days after the opening of the bids while the remaining checks and bid bonds will be returned as soon as the contract has been executed. The certified check and bid bond of the successful bidder will be retained to pay for any damage or loss to the Commission in case such successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Commission reserves the right to consider bids for fifteen (15) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

E. T. Gresham (Chairman)
J. C. Morris (Vice Chairman)
G. A. Treakle
M. B. Wagenheim
Clark R. Nickerson
COMMISSIONERS, HAMPTON ROADS SANITATION DISTRICT COMMISSION

Chas. B. Borland, Manager
Buck, Seifert and Jost
Consulting Engineers

Bids: October 16, 1956

City of Richmond, Virginia

NOTICE TO BIDDERS

Sealed Proposals will be received at the office of the Director, Purchases and General Services, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A.M. E.S.T., October 16, 1956, at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Location: The pumping station is to be located at a site northwest and adjacent to the Sewage Treatment Plant, situated near the southwest bank of the James River at Rockett's Wharf, northeast of the United States Naval Diesel School, in the City of Richmond, Virginia.

Type of Work: Division II—Main Pumping Station—General, includes the construction of the pumping station, junction chamber, regulator chamber, incoming sewers and outside piping, and all appurtenant work, except that included under Division III.

Division III—Main Pumping Station—Pumping Equipment, includes the furnishing, testing and delivering of the sewage pumps together with motors, engines, drives and appurtenances.

The proposal and other contract documents may be examined at the office of the Director of Public Works, 217 Governor Street, Richmond, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the contract documents may be obtained from the office of the Director of Public Works upon the deposit of Twenty-Five Dollars for each set. Any general contractor who submits a bona fide bid on the project will be refunded his payment in full for not more than three sets, and will be refunded fifteen dollars per set for each additional set. All others will be refunded fifteen dollars per set upon the return of the documents in good condition within ten days after the opening of the bids.

J. W. Huffman
Director of Purchases and General Services

OFFICIAL PROPOSALS

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4760) will be received at Denver, Colorado, until October 25, 1956, for furnishing one 23,500-horsepower, 600-rpm, vertical-shaft, multiple-jet, single-runner, impulse-type hydraulic turbine; one turbine governor; and one guard valve and inlet pipe for Green Springs Power Plant, Talent Division, Rogue River Basin Project, Oregon. Delivery is desired within 150 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4759) will be received at Denver, Colorado, until October 25, 1956, for furnishing one 6,300-horsepower, 400-rpm, vertical-shaft, hydraulic turbine for Big Thompson Power Plant, Colorado-Big Thompson Project, Colorado. Delivery is desired within 360 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

ENGINEERS

Are you worth up to

$10,000 A YEAR?

Important permanent positions, paying from $6,500 to $10,000 a year with unusual future opportunity, have been created by the expansion program of our large, long established engineering and construction firm. We need qualified engineers, designers and draftsmen experienced in structural, concrete, mechanical and piping design. Engineering offices are in several major American cities and Canada. Excellent working conditions. Generous company benefits. Our employees know of this ad.

Investigate this opportunity. Write today, giving age, education and experience. Your inquiry will be kept strictly confidential and will be answered promptly.

P-2652, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

MATERIALS ENGINEER

Mature man with minimum of 15 years experience in concrete and materials control required by consulting engineer for toll highway construction near Chicago. Top salary, excellent working conditions.

Send resume to

Joseph K. Knoerle & Associates, Inc.
155 N. Wacker Drive
Chicago 6, Ill.

EMPLOYMENT OPPORTUNITIES

(Continued on pages 157-160)

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
New York: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Wanted: Civil Engineers for permanent work on bridges in both design and field offices of established consulting engineer. Please send education and experience resume, references, and salary requirement. P-2368, Engineering News-Record.

Associate Professor of Civil Engineering—BS & MS in Civil Engineering to teach engineering mechanics, surveying, highway & reinforced concrete. Salary $5400 for nine months. Location—Texas. P-2297, Engineering News-Record.

Supervisory positions for High Dam Construction in India. Former Supervisory employees or those now in supervisory positions who have worked with me on projects in the past and are interested in foreign work. Contact me by letter: M. H. Slocum, 504 East Pine Street, Alhambra, California.

Highway and Bridge Designers, design draftsmen and surveyors by expanding highway engineering organization. Location, Middle-West. Give experience and references. P-2777, Engineering News-Record.

Engineers and Draftsmen. Structural mechanic for work in consulting engineers office in Hartford, Conn. area. Address reply to P-2873, Engineering News-Record.

Wanted: Executive Engineer for Florida construction firm, capable of estimating and managing all phases of road, bridge, and underground construction. Satisfactory salary with bonus. Must have executive management experience as well as field management. P-2864, Engineering News-Record.

POSITIONS VACANT

Large Midwest Consulting firm has opening for experienced sewage and industrial waste treatment designer. Excellent opportunity for man of proven ability with large well established organization. Inexperienced designer need not apply. State full experience record and salary range in first reply. Travel and subsistence for interview will be considered. P-2843, Engineering News-Record.

General Foreman—To take charge of General Construction on one of many projects with Northern New York contractor. P-2859, Engineering News-Record.

Position as structural engineer, age 30-40, offered by Portland Cement Association, 33 W. Grand Ave., Chicago. Opportunities for engineer interested in theory and design of advanced uses of reinforced concrete.

Assistant to County Engineer—Central New Jersey area. Design and construction of secondary roads and bridges and the development of a road building program. Must have B.S. in Civil Engineering or equivalent. State experience, expected salary and references. Applications answered and kept confidential. P-2721, Engineering News-Record.

Engineer. Unequalled opportunity in growing general contracting business in Central Pennsylvania. Permanent position with opportunity for ownership participation. State experience, salary desired and age. P-2793, Engineering News-Record.

Wanted: Young engineer with field experience in heavy construction for quantity take off and estimating assistance in Pittsburgh office of widely known construction company. P-2707, Engineering News-Record.

General Superintendent, qualified engineer for Kansas contractor, must have proven experience on industrial buildings & gov't. projects. Salary open. P-2754, Engineering News-Record.

(Continued on opposite page)

EMPLOYMENT OPPORTUNITIES

DISPLAYED

The advertising rate is $28.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

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Send NEW ADS and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD
P. O. Box 12 N. Y. 36, N. Y. September 27th issue closes September 14th

POSITIONS VACANT

(Continued from opposite page)

Wanted—Young man, age 23 to 35, with water works experience to work for growing private water utility in active Illinois city. Excellent opportunity as assistant to manager. Salary open. Please submit complete resume stating education, age, experience, salary desired and date of availability. P-2609, Engineering News-Record.

Designers—Steel, Concrete, Electrical Piping, Air-Cond., Power Plants & Industrial Bldgs. Marbarry Corp., 120 Greenwich St., N.Y.C. Rector 2-3749.

Wanted: Draftsmen, also Bridge Designers and Highway Designers, preferably with some field experience for major highway and bridge projects. Forward education and experience records along with salary requirements. Brookhart & Tyo, Consulting Engineers, 1729 N. Front Street, Harrisburg, Penna.

Lehigh University has openings for Civil Engineering staff members at ranks of Instructor, Graduate Assistant, and Research Assistant. If you are interested in gaining an advanced degree while serving in one of these positions, please write to: Dept. of Civil Engineering, Fritz Engineering Laboratory, Lehigh University, Bethlehem, Pa.

Construction Engineer experienced in construction sewage treatment and industrial plants, capable field supervision and estimating for bidding concrete structures, equipment and earthwork. Position open with moderate size contractor with growing possibilities. State experience, age, salary, availability and references. P-2906, Engineering News-Record.

Structural & misc. Steel Detailer—Must be experienced, excellent climate, good housing conditions, top wages. Give full particulars. Tucson Iron Works, Box 1919, Tucson, Arizona.

Wanted: Project Superintendent, familiar with F.H.A. Housing Projects; one who can take complete charge and coordinate subcontractors. Position permanent with Mid-South General Contractor. All inquiries acknowledged. P-2905, Engineering News-Record.

Materials Engineer for work in Midwest. Must know concrete paving, some soils, some asphalt paving. Degree required. Registration desired. $9-10,000. Reply Box P-2888, Engineering News-Record.

Estimator—Light industrial buildings and structural steel. State qualifications and salary desired. Reply to: Hawaii Welding Company, Ltd., 192 Sand Island Road, Honolulu, T. H.

Land Surveyor:—for old established Chicago firm. Permanent position. Salary $6600-8800 per year. Give experience in first letter. P-2916, Engineering News-Record.

Heavy Equipment Engineer with at least 2 to 3 years of Mechanical Engineering Schooling for work in the South. Full information and references in first letter requested. Reply P-2917, Engineering News-Record.

Survey Party Chief, also Draftsman. Graduate desired. Permanent position with Engineer-Land Surveyor. Reply P.O. Box 164, Bessemer, Alabama.

Civil Engineers, for expanding well-established firm. Permanent. Southern Connecticut. Highways, structures, soils, sanitary. Salary open. Reply giving qualifications, availability, salary expected to P-2913, Engineering News-Record.

SELLING OPPORTUNITY OFFERED

Established Manufacturers' Sales Representatives located in Washington, D. C., Albany, N. Y., Boston, Mass. and Miami, Fla., wanted by reputable manufacturer whose patented product is used in construction of sewage disposal plants, waterworks, pumping stations, industrial plants, etc. RW-2867, Engineering News-Record.

EMPLOYMENT SERVICE

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, P. O. Box 674, Manchester, Vermont.

POSITIONS WANTED

Civil Engineer, (soils, concrete), BSCE, 28, experience in construction engineering, supervision and control of earthwork and concrete. Desires permanent position. PW-2508, Engineering News-Record.

Civil Engineer 20 yrs. experience mainly water and sewerage. Complete supervision design some supervision construction. Available now. Please specify duties and approx. earnings first reply. PW-2852, Engineering News-Record.

Equipment Supt. or Master Mechanic—20 yrs experience of maintaining and operating all type crawler tractors and rubber tire equipment. Will go anywhere references and resume furnished. PW-2814, Engineering News-Record.

Engineer—C.E. Degree—30 years experience in structural design, steel and concrete, plant layout and engineering, material handling—Available for European assignment—Speak German, know French. PW-2816, Engineering News-Record.

Registered Engineer, 30 veteran desires opportunity in consulting or contracting firm, highways and structures. Present salary over $8000. Prefer middle west location. Replies answered promptly. PW-2790, Engineering News-Record.

Construction Manager. Industrial constr. Civil Engr., job-planning, cost-control, estimating & management specialist. Now situated Phoenix. Confidential replies. Reply PW-2527, Engineering News-Record.

Sales Engineer, BSCE, under 30. Background in heavy construction. Wishes to join growing construction equipment or materials company. PW-2504, Engineering News-Record.

Superintendent, heavy & bridge construction, 19 years experience bid to completion, $200. PW-2835, Engineering News-Record.

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Architects · Structural Engineers

Recent graduates and experienced design engineers needed.

Company paid hospitalization, life insurance, retirement and holidays. 40-hour week. Send complete experience and education resume with salary requirements to:

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5 West 45th St. New York 36, N. Y.
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P-2808, Engineering News-Record
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P-2801, Engineering News-Record
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Write to EMPLOYMENT OFFICE

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Send resume of experience, references and record of past earnings to

P-2992, Engineering News-Record
Class. Adv. Div.,
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Qualified Civil Engineer

With experience in road and drainage construction, by the Terrebonne Parish Police Jury, Houma, Louisiana.

The job will be permanent of you can qaulify. Address letter stating qualifications to:

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P-2908, Engineering News-Record
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P-2911, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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P-2909, Engineering News-Record
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All in excellent condition. Location Massena, N. Y. Immediately available subject to prior sale or disposition.

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All offered subject prior sale

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1—INGERSOLL-RAND Compressor, Model V253-N5, 5x3x3½.
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1—HOBART Electric Welder, 300 amp. 220/440 V.
1—WESTINGHOUSE Electric Welder, 300 amp. Model DC-Type RA-220/440/550 V.
1—P. & H. Electric Welder, Type WG-301. 60/375 amp. Generator; Chrysler Model IND engine, type 6A-211.

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BOTH PLANTS NOW COMPLETELY DISMANTLED
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More Delay at Niagara

THE ATTEMPT OF THE POWER AUTHORITY of the State of New York to get the courts to decide what agency is to develop the new power at Niagara Falls (see p. 28) may succeed in getting that power of decision taken away from Congress and returned to the Federal Power Commission, but it is more likely to delay rather than speed an actual start on construction of that badly needed project.

Normally, the Federal Power Commission would make the decision as to who gets the license to develop any power site within federal jurisdiction. But when the Senate approved the 1950 treaty authorizing added diversions of water for power on both sides of the border at Niagara it reserved to Congress the right to select the agency to use the added water. Licenses to use all the water that could be diverted under earlier international agreements are held by the Niagara Mohawk Power Corp. Bills have been introduced in Congress to authorize that company to develop the added power, and other bills would grant that right to the New York Power Authority. But none of them has passed both houses. Congress has procrastinated disgracefully on this important matter while Canada has gone ahead with its development work and now is generating power with the added water.

The most logical agency to receive a license to use the added water at Niagara is the Niagara Mohawk Company. Under such a plan, all the water would be at the disposal of one agency, as is the case in Canada. But the probability of that company getting the necessary authorization from Congress is remote indeed. The second most logical agency then is the New York State Power Authority. It is now a going concern, developing the U.S. share of the power that is to be generated as part of the St. Lawrence Seaway and Power Project. A bill to permit the Power Authority to use the Niagara water was passed by the Senate at its latest session but was not acted on by the House. Approval of that bill could take only a matter of weeks if Congress could be persuaded to act promptly when it convenes. Possibly the recent destruction of most of the power-generating equipment of the Niagara Mohawk system on the New York side by a rock slide may provide the incentive for such action.

But the Power Authority is not content to wait for Congress to take action. Eminent legal authorities have advised it that Congress has no constitutional right to make the reservation it made when it approved the 1950 treaty. That power, they say, still rests with the Federal Power Commission. So the Power Authority has applied to the FPC for a license, knowing full well that the FPC will refuse because of the reservation made by Congress. As soon as the license application is denied, the Power Authority will ask the courts to have the denial set aside on the ground that Congress acted beyond its constitutional authority in adding its reservation to the 1950 treaty.

Such action would provide lawyers with a lot of profitable work. The court case would have to go to the U.S. Supreme Court. And it might well end in an adverse decision, inasmuch as Congress created the Federal Power Commission and presumably has the right to alter the limits on its powers. However, the worst aspect of such court action is that it might antagonize members of Congress and cause them to pigeonhole any bills granting development rights to the Power Authority until the courts act to sustain or deny its power to decide what agency is to develop the new Niagara power.

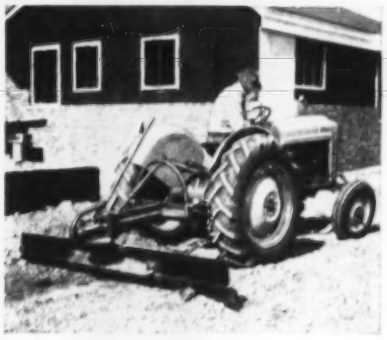
Unless the Power Authority abandons its planned court action, the prospects for early action on Niagara are not bright.

Unnecessary Concern

THE STATE DEPARTMENT HAS OBJECTED to Congressional approval of the compact between states bordering on the Great Lakes that seeks to foster joint action on matters relating to the waters of the lakes, matters such as stabilization of lake levels, improvement of navigation facilities, pollution control, protection of fish and wildlife and diversions of water (ENR Feb. 17, 1955, p. 42). The proposed pact has been approved by the legislatures of Illinois, Indiana, Michigan, Minnesota, Wisconsin, and Pennsylvania. Ohio and New York are expected to approve next year. Plans call for asking the Canadian provinces of Ontario and Quebec to participate.

The State Department fears that the Great Lakes Commission, which has been set up under the pact, may attempt to usurp federal functions or supplant the International Joint Commission or the Great Lakes Fisheries Commission. Their fears appear unfounded. The pact is primarily a consultative agreement. The Commission's function is to study matters at issue relating to the Great Lakes and to make recommendations as to desirable action. But it has no power to act in the name of the states that signed the compact. It could make recommendations to the International Joint Commission on matters relating to international waters. The International Joint Commission is free to accept or to reject them.

The compact to which the State Department objects grew out of a real need for closer cooperation between states touching the Great Lakes on matters affecting the use of the lakes. It should be a help rather than a hindrance to the federal government, International Joint Commission and the Great Lakes Fisheries Commission. Hence it should receive Congressional approval.



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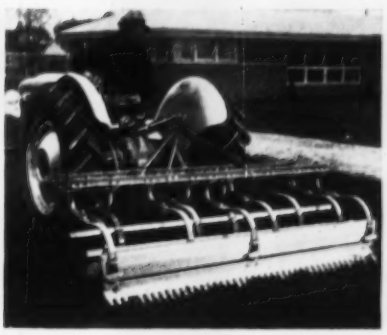

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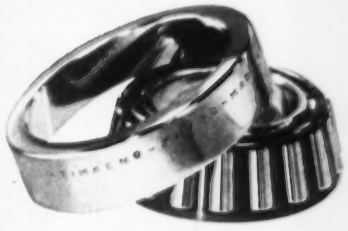

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